

SEP -2 1958

Six Page Feature- **DINO 246, FERRARI'S NEW V6**

# SPORTS CARS ILLUSTRATED

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35¢ september 1958

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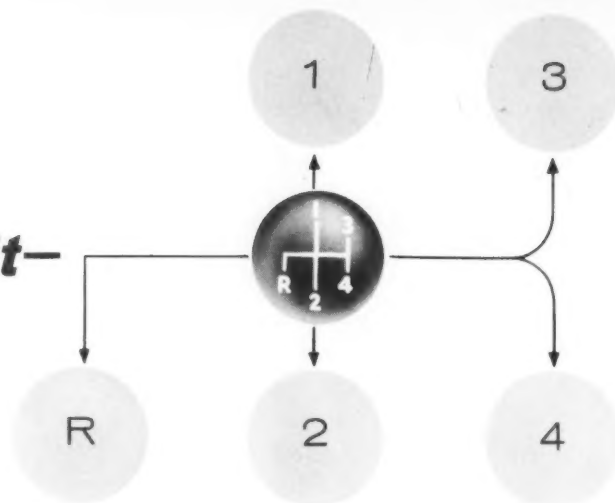
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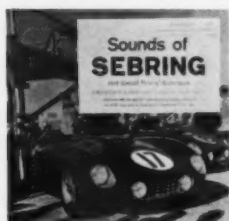
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# SPORTS CARS ILLUSTRATED

september 1958  
no. 3 vol. 4

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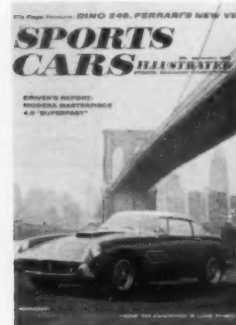
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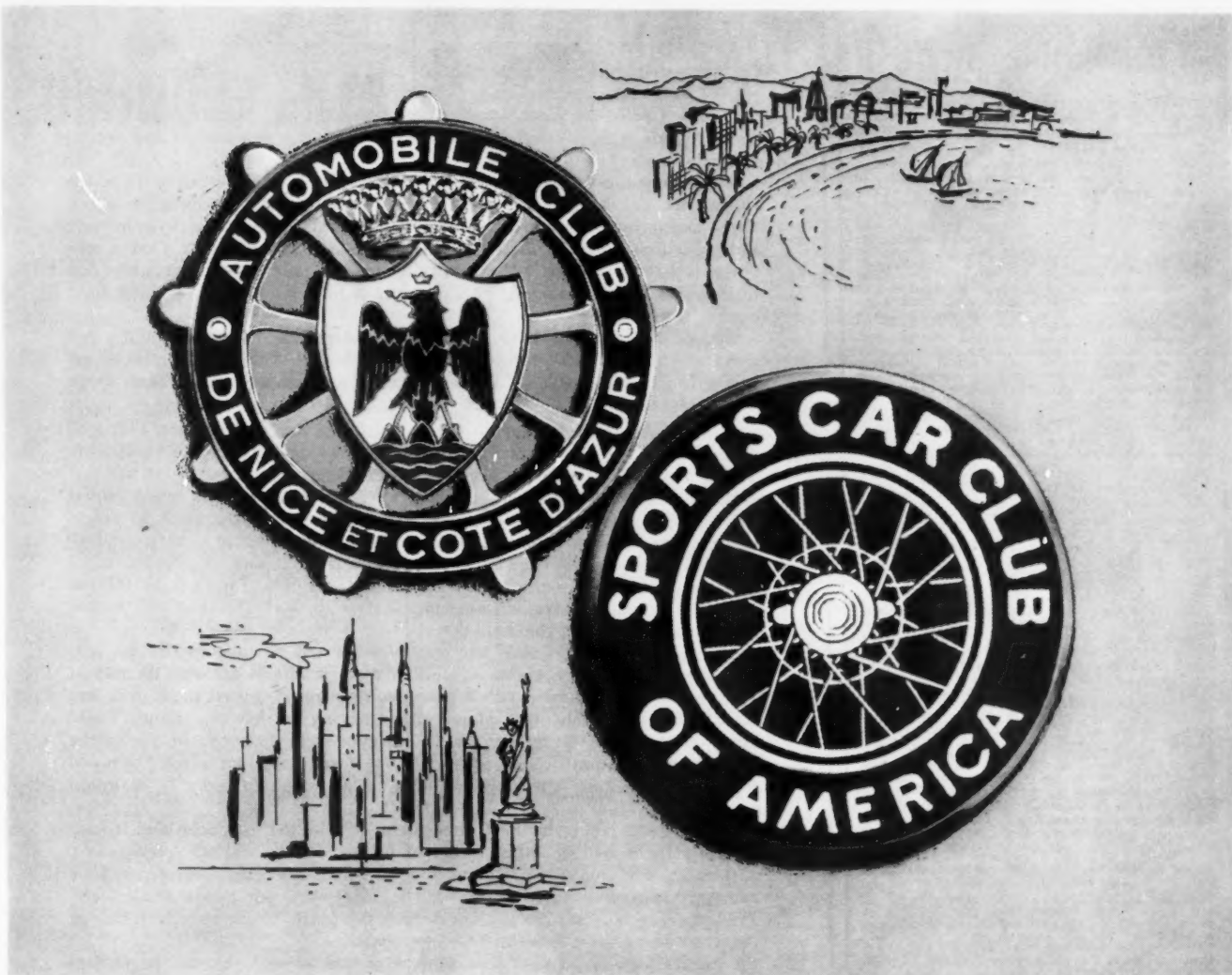
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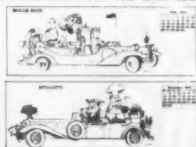
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If you liked this ad let us know, or better yet, bring it with you if you come in as we'd like to meet you. Sincerely, Bill Gordon.

very sincerely yours:

It has been made perfectly evident that this department favors some sort of co-operation between and acceptance of professional sports car racing in these United 49 States. However, we have one very definite reservation to make in this regard. The subject of the reservation is one nearest and dearest to many hearts — money.

The problem of going for dough lies primarily in the method of handling the payola, of who gets how much and how many places are money winners. Early announcements and statements from USAC's sports car division have indicated that only the first three or four places will be paid. That is, the entire purse will be divided among only three or four front runners, the rest of the field having competed either for nil or for what they could glean from outside sources.

One of the major objections raised in the past by the SCCA and other amateur clubs against professionals is that the caliber of driving could get pretty rough and dirty. Under certain circumstances there is definite merit in this objection.

Those circumstances came to the fore in a reported conversation that took place during the 500 Miglia de Monza—the so-called Race of Two Worlds. The principals of the conversation need not be named since we weren't present and don't know for sure just what took place but we have heard similar comments in the past. If the conversation did take place it could lend weight to arguments against pro-am cooperation. What was supposed to have occurred was that one of the drivers for one of the European cars complained to an American driver about the Yank's blocking tactics. The Yank's comment was to the effect that American professionals have to work for their money and couldn't afford to wave the other guy on.

That comment is certainly not indicative of the attitude of the majority of professionals most of whom realize that road circuits do not lend themselves to rough tactics, especially with big-bore equipment. However, the lure of loot is such that too much prize money spread among too few top runners could bring out more of the feeling that Ward expressed. The man in one of the lower money positions would definitely be tempted not to let himself be nosed out and under some circumstances might play rough in order to maintain position.

True, if road racing in the United States follows the European and British examples there will be other forms of income in the way of sponsorships, starting money, industrial grants and the like. However, European prize money is split up way down the line so that everybody gets a small piece. True, the biggest share goes to the winner but it isn't by any means a case of "winner take all" as it is in the USAC proposal.

It would seem to us that a reappraisal would be advisable on the part of USAC. A simple thing such as this can, if handled wrong, torpedo the whole professional program and worse, could leave a bad enough impression to torpedo the amateur set-up as well.

Next month is our special issue on club activities, i.e., what you can do with your sports car aside from moonlight cruises and the like. Big features to come are Griff Borgeson's rally-timing piece which gives the real lowdown on time pieces for spot-on navigation, Art Peck's all-covering story of how rallies are conducted around the world — some of these are hairy exercises indeed. Sherrie Zuckert tells the story of one of the most active and interesting small clubs in the country, and Steve Wilder tells the tale of Put-In Bay, wherein champagne bottles take the place of beer cans in the last of the round-the-houses races in the U.S. today.

—john christy

OH YEA!



"I KNEW SAM EVER SINCE WE WERE KIDS, WENT THROUGH HIGH SCHOOL TOGETHER, THEN AFTER COLLEGE WE GOT MARRIED."

"YOU REMEMBER HOW I WAS IN COLLEGE, THE BIG PLAYBOY TYPE. WELL WHEN MARGE SAW ME TOOLIN' AROUND IN MY MORGAN SHE STUCK TO ME LIKE GLUE . . ."

# COMING EVENTS

## REGIONAL AND NATIONAL RACES

(Capitalized events are Nationals)

- Aug. 2, 3 SCCA N. W. Region, Bremerton, Washington
- Aug. 2 Lime Rock "Little LeMans" Sedan Endurance race
- Aug. 16 SCCA MILWAUKEE REGION, MILWAUKEE, WIS.
- Aug. 16, 17 SCCA N. Y. REGION, MONTGOMERY, N. Y.
- Aug. 30, 31 SCCA N. Y. REGION, THOMPSON, CONN. CSCC Santa Barbara
- Sept. 6, 7 SCCA ROAD AMERICA, ELKHART LAKE, WIS.
- Sept. 14, 15 SCCA Del Mar, Calif.
- Sept. 20 SCCA GLEN, WATKINS GLEN GRAND PRIX
- Oct. 4, 5 SCCA WASHINGTON REGION, DANVILLE, VA.
- Oct. 11, 12 SCCA SAN FRANCISCO REGION, VACA VALLEY

## DRIVERS SCHOOLS

(For further information contact Harold Annis, Box 86, Chappaqua, N. Y.)

- Aug. 23 SCCA Area 1, Thompson, Conn.

## SCCA NATIONAL RALLIES

- Aug. 22-24 BERKSHIRE MT. RALLY, N.E. REGION
- Sept. 12-14 CONTINENTAL DIVIDE RALLY, COLORADO
- Sept. 20, 21 MICHIGAN MIGLIA RALLY, CHICAGO
- Oct. 10, 12 RIP VAN WINKLE RALLY, N. Y. REGION
- Oct. 24-26 FLAMING FALL RALLY, KANSAS CITY
- Nov. 7-9 APPALACHIAN RALLY, PHILDELPHIA REGION

## INTERNATIONAL EVENTS

- Aug. 10 Swedish Grand Prix
- Aug. 15 Pescara Grand Prix, Italy
- Aug. 17 Portuguese Grand Prix
- Aug. 17 Sables d'Olonne Grand Prix, France
- Aug. 27 Liege-Rome-Leige Rally, Belgium
- Aug. 30 Brands Hatch race, England
- Sept. 7 Italian Grand Prix, Monza
- Sept. 13 RC Tourist Trophy, England
- Sept. 20 Oulton Park races, England
- Sept. 28 Modena Grand Prix, Italy



## ARE SMALL-CAR OWNERS NORMAL?

By  
Marion Weber

Hi, there! Well, this just happens to be one of those months there isn't any particular happening, circumstance or event for me to write about. It's too early for "Back To School" events and we already worked "Vacation Time" over. We could use "Dog Days" as a theme, but people might think it referred to our merchandise, so, maybe just some cute descriptions of the wonderful bargains we have for you is enough. Anyway, if you've read this far looking for something interesting you may as well carry on.



Gizmo #1 is for small sedans . . . and I think that every VW, Renault, Volvo, Fiat, Simca, Hillman, Morris and Poo-joh should have one. Why? Because you are a lot less likely to over-rev or lug your engine with the tach needle there to tell you what's happening under the hood. Lugging causes excessive cylinder pressures and is like real hard on the bottom end and over-revving can lose some expensive valves for you. Don't take a chance any longer, for only \$28.95, complete, you can have a tach. Only two wires to connect, mounting brackets allow you to place it wherever you want. Order today.

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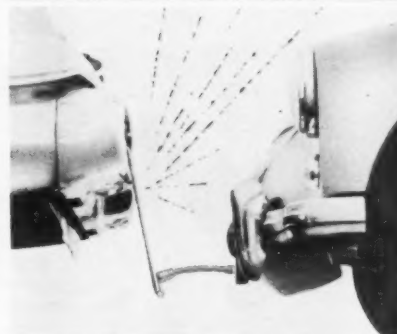
If your vacation hasn't come up yet and you drive a sports car, do take our advice and latch

onto a removable luggage rack, (ours, preferably). This attractive chromed and polished wood job pops onto the deck of your MGA, TR, Jag, Healey, T-Bird or Corvette in a trice, is not dislodged by vibration or other environmental extremes yet can be removed in a few seconds. No holes to drill, no tools needed to install . . . for AH, MGA, TR . . . 24.75; for Corvette . . . 27.50; for T-Bird . . . 29.95 (add \$2.00 postage).

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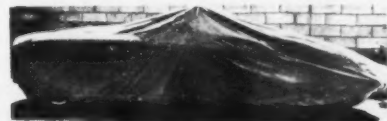
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# TECHNOTES

Stephen F. Wilder

## DEFINITIONS

Please define the following words seen frequently in your magazine:

Testa Rossa, Spyder, Sprint, Bolide, Gran Turismo, and Special. I have purchased a car with a Kurtis frame, Lincoln engine and fiberglass body. Does it come under any of those classifications?

Nathan Soroka  
Los Angeles, Calif.

Nearly all of these are used as part of some car's name, yet each has a literal meaning which is related usually to its use on a particular car. The only exception is the Ferrari Testa Rossa, that's Italian for Red Head and trust the Italians to think of that! Okay, they do paint the cylinder head red, too. In the old, old days, a spyder was a very light, fast carriage which, I believe, carried only two people. Today, both Porsche and Alfa-Romeo use it to refer to cars which meet much the same description. At Porsche, the term is reserved for the sports-racing cars while at Alfa-Romeo it is used on all their open two-seaters in the 1300 Giulietta series (and that name of course is a pun based on the old love story made famous by Shakespeare.) The name Sprint is used only by Alfa; in opposition to the Spyder, it refers to the closed two-seater Giuliettas.

Bolide is used to describe one of the Arnolt-Bristol models but I'm afraid some "bright young man" didn't read enough of the definition in Webster's Collegiate Dictionary: "A brilliant meteor; esp., one which explodes." Fortunately, the cars only live up to the first half of the definition.

Defining Gran Turismo (Italian) or Grand Tourismo (French) or just plain Grand Touring is now just as vexing a job as defining a sports car used to be. For competitive purposes, the FIA (which is, incidentally, the international governing body for four-wheeled motoring sport) sets things out very elaborately in their Appendix J to the Sporting Code. Basically, the Europeans use GT to refer to what we usually call Production Sports Cars. Be that as it may, Saab has joined the ranks of Ferrari, Maserati and Porsche in producing a car for road use that is named GT. Although the latter's Carrera GT is an exception of sorts, each of these lives up to our favorite definition of the Gran Turismo which is: a car that is grand for touring.

Special is the old catch-all term; it's always used for cars built by amateurs (does anyone actually build a car in his backyard instead of the garage?) and for vastly modified or specially built cars which lack any other name. For instance, Lance Reventlow's car would be called the Reventlow-Chevrolet Special if he hadn't thought of calling it the Scarab. Old AAA rules used to require that Championship cars be called the Something-or-other-Specials, apparently so the public wouldn't realize that they were all so nearly the same. So when Ascari drove at Indy, his car was a Ferrari Special.

To answer your last question, yours is certainly a special even though the Kurtis was in production for awhile. Why? Because neither the engine nor the body is the same as when the car was originally produced. Either your car was specially built or has been greatly changed from its original specifications. If you go racing in it, you could call it a Kurtis-Lincoln or, if you want to brag a bit, the Soroka Special.

## BRAKE FLUID

The 390° F. boiling point brake fluid referred to in last month's Technotes is available from Chrysler, DeSoto, Dodge and Plymouth dealers as a Mopar product. Looks to me to be a very wise investment for anyone going racing.

## CROSLEY SERVICE MANUAL

This hard to get item has been reissued by Service Motors, 581 Hempstead Turnpike, Elmont, L. I., N. Y. Covering all the various Crosley cars from '46 to '52, it will be sent postpaid upon receipt of five dollars.

## ODDS AND ENDS

An additional Lister distributor to those mentioned in the July story is Kelso Auto Dynamics, 2515 H Street NW, Washington, D. C. In charge now is Harry R. Beck, Jr.

Ace Bristol price was inadvertently given as \$5999 in the test of its sister car, the Aceca. It is really \$5699, as the Bristol engine adds \$900 to the basic model's price. As to how Rootes Motors got the franchise away from all the distributors mentioned in the text; well, we've banished so many proofreaders to various farflung spots that soon there won't be anybody left at all. Rootes, of course, do sell the Rapier tested in the same issue.

And for those who are still looking for the asterisked footnote to the BRM story, here it is:

\*They never are.

## BLOWN FUSE?

A rumored Grand prix car is the "Fuse". Using the supercharged option of Formula One, it is said to be intended for short circuits only.

## FARINA FERRARI

Just in time to make this an all-Ferrari issue is this latest from Jesse Alexander. Not intended to supersede the "Berlinetta," it will be the standard Farina body for 250 GT Ferraris.





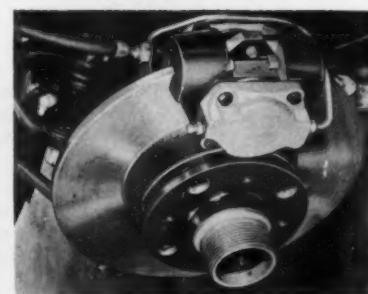
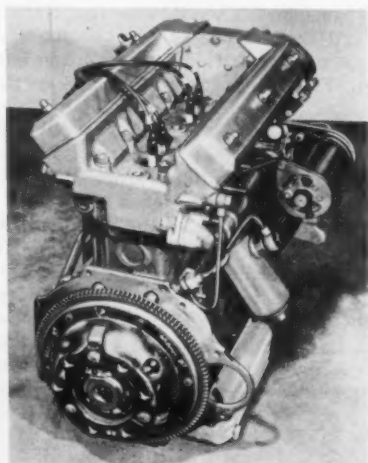


## MGA "Twin Cam"

**W**HAT'S THIS? The TC's coming back? Yes indeed, but it's an old designation with new meaning — and at that, it's SCI's own contraction of the car's proper name, the MGA "Twin Cam". Driven by a Duplex roller chain, the two cams operate valves at 80 degrees in this long-awaited cylinder head. Under development for several years now, it fits right on the sturdy BMC "B" series block. The latter has been bored out to within 1/32 of three inches. Though stiffened, the three-bearing crank still has a 3.50 in. stroke and total cylinder displacement is 96.9 cubic inches (1588 cc) which takes better advantage of FIA and SCCA classifications. Rods as well as pistons are changed, and to complete the picture, a venerable TC touch is added in the finned, cast aluminum pan. Now, however, oil capacity is noticeably increased with large bulges on the sides. Rated power is 107 at 6500 rpm, and at 5000 revs it is only down to 97 bhp.

Other features of the MGA "Twin Cam" include center-lock wheels and brakes, both discs, both by Dunlop. With the factory claiming 120 mph (we'll check on this in our SCI Road Test soon), and acceleration to match, this should liven up SCCA Class F Production appreciably. Price? About \$3400 at Eastern Ports of Entry.

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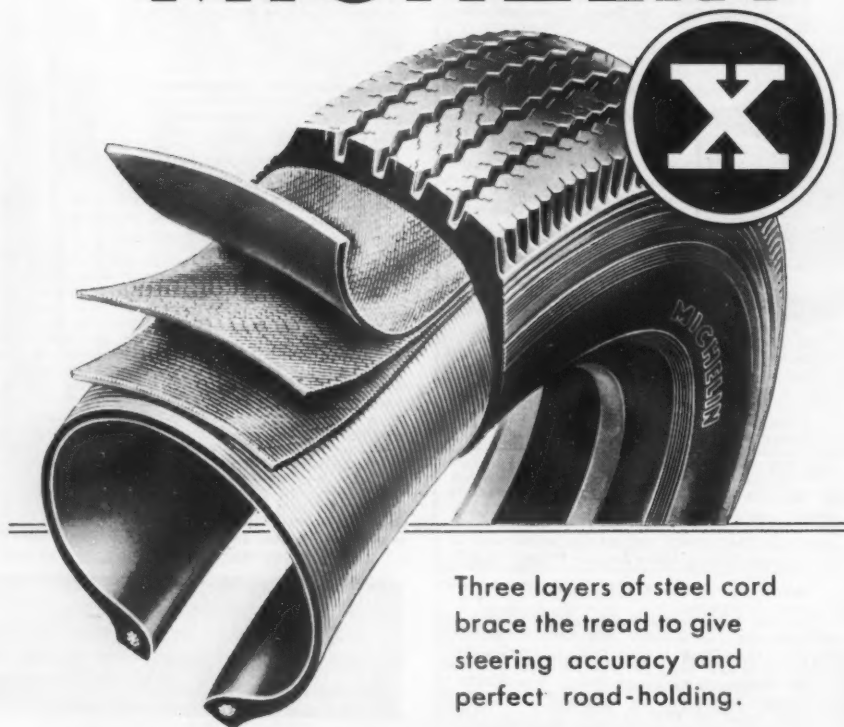
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## letters

### THAT'S GOOD ADVICE

An item in your July issue, page 14, relating how the Johnson Accessory Company is manufacturing chrome plated horse power indicators to attach to an instrument panel suggests to me a much more useful enterprise. Why don't they chrome up a series of figures — like \$70.80 — so a guy can know what his monthly payments are? After the car is paid off a man could put it on his badge bar.

Wesley Price  
Associate Editor  
Saturday Evening Post  
Philadelphia, Pa.

*Are you for real???—Ed.*

### ADD ONE

Let's have more wonderful articles like that by Dennis May on the Auto Union. A really fine piece. Dennis does make one error of omission which I feel I should justify. This is in stating that only three drivers (Rosemeyer, Stuck, Nuvolari) were really successful in these fantastic cars. Actually, a fourth driver should have been mentioned — this being Achille Varzi who replaced Hans Stuck as Auto Union's No. 1 driver in 1935. Sickness forced him to retirement in 1937.

Edward Giusto  
New York, N. Y.

*You are quite correct.—Ed.*

### MONEY-GO-ROUND

What's with the SCCA — first they ban people like Phil Hill because he's successful in Europe by saying that nobody can accept money ANYWHERE and still be "amateur". Then they say that Nassau's Speed Week is OK as long as nobody accepts money prizes and pays a token hotel bill. THEN they turn around and say that Nassau is unsafe and no SCCA member may race there. This last is obviously trumped up so that SCCA won't lose face in this amateur thing. When they originally decided on a "token" hotel bill it was for the benefit of the members who like to go to Nassau in December — the public not falling for this ruse must be the reason for the recent ban on the course. If SCCA is so busy chasing its own tail, how on earth can it expect to run decent races on its own? Either SCCA's days are numbered or sports car racing will not die — just fade painfully away.

Heathcliff  
Great Neck, N. Y.

### SEEING DOUBLE

... I can't resist calling attention to a "discrepancy" in the chart on page 23 of your July issue. According to this chart, car #151 passed the scorer *twice* during the nineteenth lap — a truly remarkable machine...

Sue Eastwood  
Randolph AFB, Texas

*You are so right! However, that error shows concisely what can happen when you lose track for a minute.—Ed.*

## WHO CAN SAY?

If imitation is the sincerest form of flattery, then gobs of flattery have been heaped on the late, unappreciated, Crosley Hot Shot. The new BMC Sprite is the "spitting image" of it. How can one who designed such a pretty body as the A-H 100 4 cyl. (not the six) come up with the poorest parts of the TR2 and a Hot Shot?

J. J. Greaves  
Bainbridge, N. Y.

Styling is just a matter of taste. Ask anyone in Detroit.—Ed.



## WHO ASKED?

This is my answer to Coventry's XK 150. The headlights and tailfins will be available in kit form with complete instructions by September.

Glen J. Stock  
205 Shadowlawn Dr.  
Inkster, Mich.

The opinions expressed in the letters are not necessarily those of the editors.—Ed.

## ADDRESSES

Would it be possible for you to give me the mailing address of the SCCA and USAC? Have been trying to find these addresses in your magazine for quite a while, and as yet they have never been mentioned.

Fred C. Pump  
Leesville, La.

Sports Car Club of America, P.O. Box 791 Westport, Conn.

United States Automobile Club, Indianapolis Speedway, Speedway City, Indiana.

## BY POPULAR DEMAND

Could you tell me where I can get information on the Denzel 1300? According to your test of the Denzel in the January issue, it sounds like a real nice second car.

J. E. Smaltz  
Milwaukee, Wis.

I would appreciate any information you could give me with regard to the WD; prices, availability, etc.

Nikolai Gumbatz  
New York City

For information write to: Hannig & Olbrich, 10940 Magnolia Blvd., Los Angeles, California.



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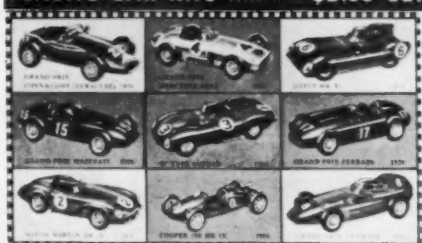
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what's new?

JOHN POWERSTONE



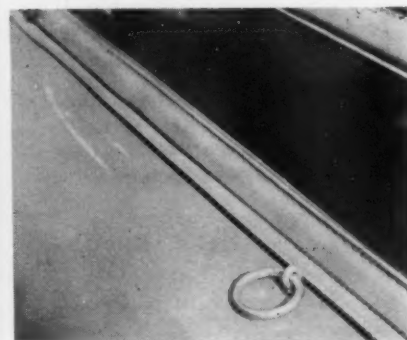
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## four speed VOLVO

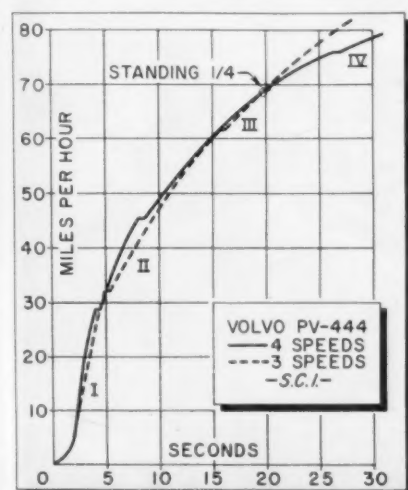
WE RECENTLY HAD a chance to try out a new Volvo with the all-synchro four-speed gearbox. Optional at no extra cost, it is indeed a pleasant addition to this already lively car and fills a long-felt, oft-expressed desire of the make's many enthusiastic owners. We enjoyed our short visit with the PV444 (four cylinders, four wheels and now four speeds?), finding that it bears more than a surface resemblance to the pre-war Fords. Like a car set-up for oval track racing, the Volvo will lift the inside front wheel when being pressed to the limit, ensuring that traction is always available.

The seats, though the farthest thing from buckets, are very comfortable. Leaning one's left elbow on the arm rest seems to become very much a part of the seating position, which is the sit-up-straight-and-tall variety. Not only comfortable, this gives the driver an excellent view of what's going on around him.

The acceleration graph shows a considerable improvement in the lower speed range; if our four-speeder had been as well set up as the three-speed car we tested last October, the improvement would have continued to show. Instead, our tests were run on a car which was only just run in, 1300 miles showing on the odometer. The rear axle ratio is, of course, unchanged, and the three-speed box is available for those who want it. Sales people say that it is actually a big selling feature, not only on the Volvo but also on English Fords and other three-speeders. To a certain group, yes, but to SCI readers, this new option is welcome news indeed.

### Transmission ratios:

I	3.45	(3.13)
II	2.18	(1.62)
III	1.31	(1.00)
IV	1.00	---



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# EL BATALLADOR



Illustrations: Forbes Linkhorn

**I**N THE DUSTY BORDER TOWN of Juarez, at the cool bars along the narrow, sun-splashed streets, they still talk of the remarkable young American and of the epic drive he made in the fifth and final *Carrera Pan-Americana* — the last of the great 1900-mile road races across the jagged spine of Mexico.

The date was late November, 1954, and when the wiry Californian they affectionately nicknamed *El Batallador* (The Battler) roared his 3-year-old 4.5-liter Ferrari under the checkered flag at Ciudad Juarez he had shattered the winning record set the previous year by World Champion Juan Fangio in a sports Lancia.

But the shark-finned 4.5 had not been quite swift enough; Italy's Umberto Maglioli had won the race in a new (and considerably faster) factory 4.9 model by a narrow margin of minutes after five grueling days of all-out speed.

Nevertheless, for Philip T. Hill, Jr. of Santa Monica, this second overall finishing position was enough to convince him that he could successfully compete against the best racing talent the world had to offer. It was the turning point in a career that would carry him to his present top rating among U.S. sports car pilots, a career that would see him co-drive team Ferraris (with Peter Collins of England) to consecutive international victories at Caracas and Buenos Aires, climaxed in March of this year by a decisive win in the Florida 12-hour Sebring Grand Prix of Endurance, and finally capped by victory at Le Mans.

"Now, I'd driven against the Europeans earlier than '54," Hill declared. He was seated on a deep gray couch, ringed by dozens of silver trophies, in his newly-

decorated two-room bachelor quarters at his aunt's quiet Santa Monica home. Tall pines stirred under a mild California breeze outside the window as Hill talked. "I'd competed in the Mexican thing in '52 and '53, you know, and then I also ran at Le Mans in '53, but I had nothing but grief in these events. They didn't prove much to me. At Le Mans the differential failed on our OSCA, and I had my only real crash that same year in Mexico when I upended a Ferrari coupe on a blind turn in the mountains. Then, in January of '54, I went down to Argentina with the American team and my car called it quits after a few laps. Fact is, I decided to give up racing altogether after Argentina."

Hill patted his stomach. "Had a bad ulcer and my doctor told me if I continued to race it would result in a hemorrhage. So I quit."

But Phil Hill could not stay away from cars, and he was far too nervous to relax. With his brother, Jerry, he tackled the intricate and extensive job of completely restoring the old family Pierce Arrow to its original 1931 showroom condition. To achieve this, the car had to be rebuilt from the frame out.

"We took a half dozen trophies with the Pierce at various auto shows and *concours*," Hill said. "And we still exhibit it occasionally around Los Angeles."

However, after ten months, a "compulsive need" to race drew Hill back into active competition. In early November of 1954 he took second at California's March Field, immediately followed by his fabulous 5-day battle with Maglioli in Mexico.

"I won several stages of the race and sometimes we were literally wheel-to-wheel for an entire day's run," stated Hill. "I was quite satisfied with my performance



Dennise McCluggage



Irving Dolin

## a portrait of Phil Hill

by William F. Nolan

down there and it gave me the confidence I required in order to go on competing. Up to then I was never really certain — even after six years of competition — that I wanted to be a racing driver."

The phone rang by his elbow and Hill answered it. He spoke rapidly, nodding, then replaced the receiver and grinned self-consciously. "That was a reporter from the local paper. They want to do a column on me. You know, I must sound awful over the phone. Really. I mean, far too abrupt." He sighed.

This concern is typical of Phil Hill. Deeply introspective, with a penchant toward self-analysis, he is continually balancing action against reaction. Able to examine his childhood and the early days of his career with clear insight, Hill is acutely aware of the forces that shaped him.

"My father was a highly-respected man in this area," said Hill. "He was postmaster of Santa Monica from 1935 until his death in '51 — and he certainly didn't like the idea of my racing. He only saw me compete once: at the old Carroll Speedway when I barely made it between a spinning car and the fence. Well, that was enough for him. My mother (who, incidentally, was a very fine musician and a talented composer when she was younger) was much too ill most of the time to pay attention to anything I did. She also died in 1951, just two weeks before my father's fatal heart attack. I was 24 then, and I'd been competing off and on for three years, beginning at Carroll with an MG-TC."

Asked when he first became interested in cars, Hill replied: "I was a fanatic from the age of six. On the way home from grade school in the afternoon, when the other kids were playing baseball, I'd roam through junk yards, looking at all the old rusted autos. Weekends I'd go out to Gilmore Stadium and watch the midgets. I could identify any make of car at a glance — and the other guys would make fun of me, mocking the way I used to call out: 'There's a '23 Dodge! There's a '31 Chevy!' when I'd see a car coming from half a block away. By the time I was 12 I had my own car, a beat-up Model T Ford. Couldn't drive it in the city so I'd take it down to a quarter-mile dirt track in Santa Monica canyon and roar around and around in the dust."

A soft tapping at the door interrupted the narrative at this point, and Hill moved quickly to the coffee table where he began clearing away scattered copies of several auto magazines. "I subscribe to all of them," he explained, "then try to catch up on my reading whenever I'm home." The door opened and Fred Grant, butler for the Hill family since 1916, carried in a large tray of tea and sweet rolls. He placed the tray carefully on the table and Hill began to pour, resuming the conversation.

(Continued on page 54)





# SCI DRIVER'S REPORT

by Stephen Wilder



Photos by Irv Dolin

## Ferrari 4.9 Super fast



**I**T WAS a Sunday afternoon in late spring. The scene: New York's Hutchinson River Parkway. The two checkered cap collegiates in the top-down TD ahead didn't see us coming. Cruising up at 45 mph in fourth, we silently changed down to third and then to second. Alongside by then, we dropped into synchromesh low, double-clutching purely for effect. Blasting once on the Marchal *Stridor* air horn, we fled the scene at full throttle, rending the air with not-so-quiet thunder and leaving a faint trace of abused rubber on the concrete.

A bit theatrical perhaps, but in a car which can do 0-60 in first gear alone, a car which roars from under 30 in fourth to a maximum *way* over two miles per minute, a car which excites the eye of every beholder, well, in such a car as this, complete restraint is nearly impossible for us. What sort of machine is this that produces such unlikely conduct on our part? Why, a Ferrari, of course—but what a Ferrari is this one. A 4.9 *Super fast* with body by Farina, it is the personal pet of Jan de Vroom, a wealthy Dutch importer. With Luigi Chinetti and George Arents, he is co-sponsor of the North American Racing Team.

The idea of the *Super fast* was born when Enzo Ferrari decided to put the truckish 4.9's torqueful engine in the limber three liter's wheelbase. It's a bit of a squeeze, and frankly, the leg room in the wide cockpit suffers from hewing to the 102 inch limit. The tread, though, is about 4¼ inches greater front and rear, which is dictated by the larger engine.

The goal was to combine the virtues of each, the dead accurate yet reasonably light steering of the 3.0 with the combined tractability and brute power of the reliable, race-proved four-nine.

Not only does the horsepower race run through the streets of Modena as well as Detroit, it seems to be run at a pace that's faster than the *Milli Miglia*. The acceleration figures for the four-nine are the fastest ever recorded here at SCI, and on a car for road use at that! The comparison in the performance section of our specs box with the three liter GT is revealing. First of all, it shows that the 4.9 is a little slower off the mark. As a matter of fact, it is so difficult to get off the mark in a clean and rapid fashion, that, there being only a gentle side wind during our test, I have felt no hesitation at all in using our best run figures rather than the usual average of four runs. It is discouragingly easy to waste an additional second at the start, and though the purists will scream, I would like to see a Hydramatic in this car. (Letters will be filed circularly).

Second point of note is that the 3.0 seems to have run into a brick wall after the shift to third compared to the 4.9's seemingly endless ability to wind and wind. If we had cared (or dared) to go on out to 7000 in second we could have saved about three-fourths of a second on the already stunning 0-100 time, saving the shift to third until just 100 mph.

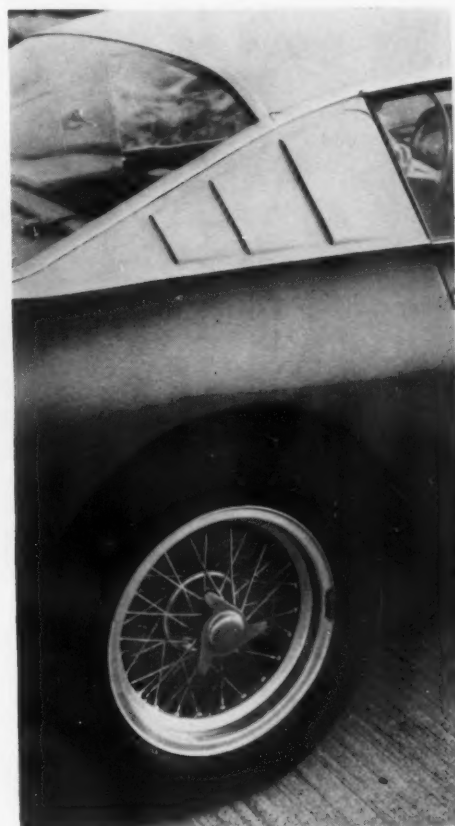
There was considerable error in the speedo, most of it caused by the inability of some Italian to convert kph into

mph with any degree of accuracy. The dial shows kilos on the outer rim with miles on the smaller inside dial as a concession to the American way of life (i.e., speed traps). Being more familiar with them, we used the English units. Because of the previously mentioned traffic, speedo calibrations were not made above 80 mph indicated, which turned out to be 75 actual. So the remainder of the acceleration curve was plotted using the measured time from standstill to the shift out of second (at 6500 rpm which equals 93 mph) plus the knowledge that the area under this curve at any instant must equal the distance traveled from the start. Therefore at 13.9 seconds, our best standing quarter time, the area equals 1320 feet. From the curve so estimated beyond the shift into third, we find that the speed at the end of the quarter must have been about 108 mph. Not bad, not bad at all. Anybody for pink slips?

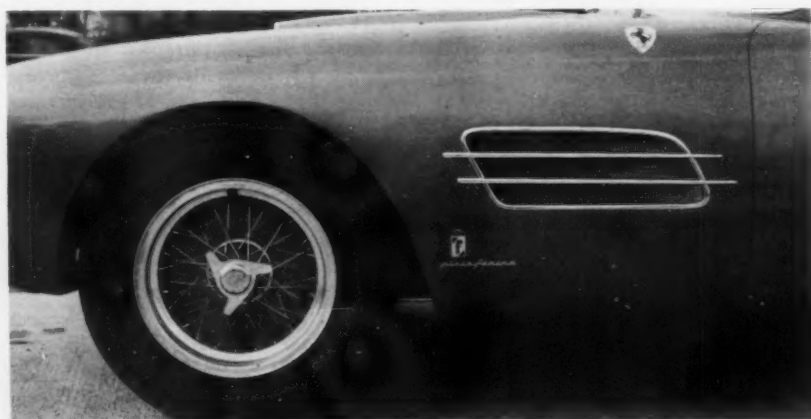
Nearly as impressive as the acceleration is the engine's flexibility. We were able to use full throttle as low as 900 rpm, even in top gear. With such a supple engine and with gear ratios as close as these, astonishing tricks can be played. Doing the classic zero to sixty in first gear alone has already been mentioned. What turned out to be just as fascinating was to make full throttle runs in each of the other gears from 40 to 75 (actual) mph. The times required were 5.2 seconds, 6.8 and 9.0. But please don't try to extrapolate anything from these three figures because the road was not exactly level nor even truly straight. We would have liked to have done these over a wider speed range but the traffic around us wouldn't permit it.

One of our first discoveries was that our usual test site

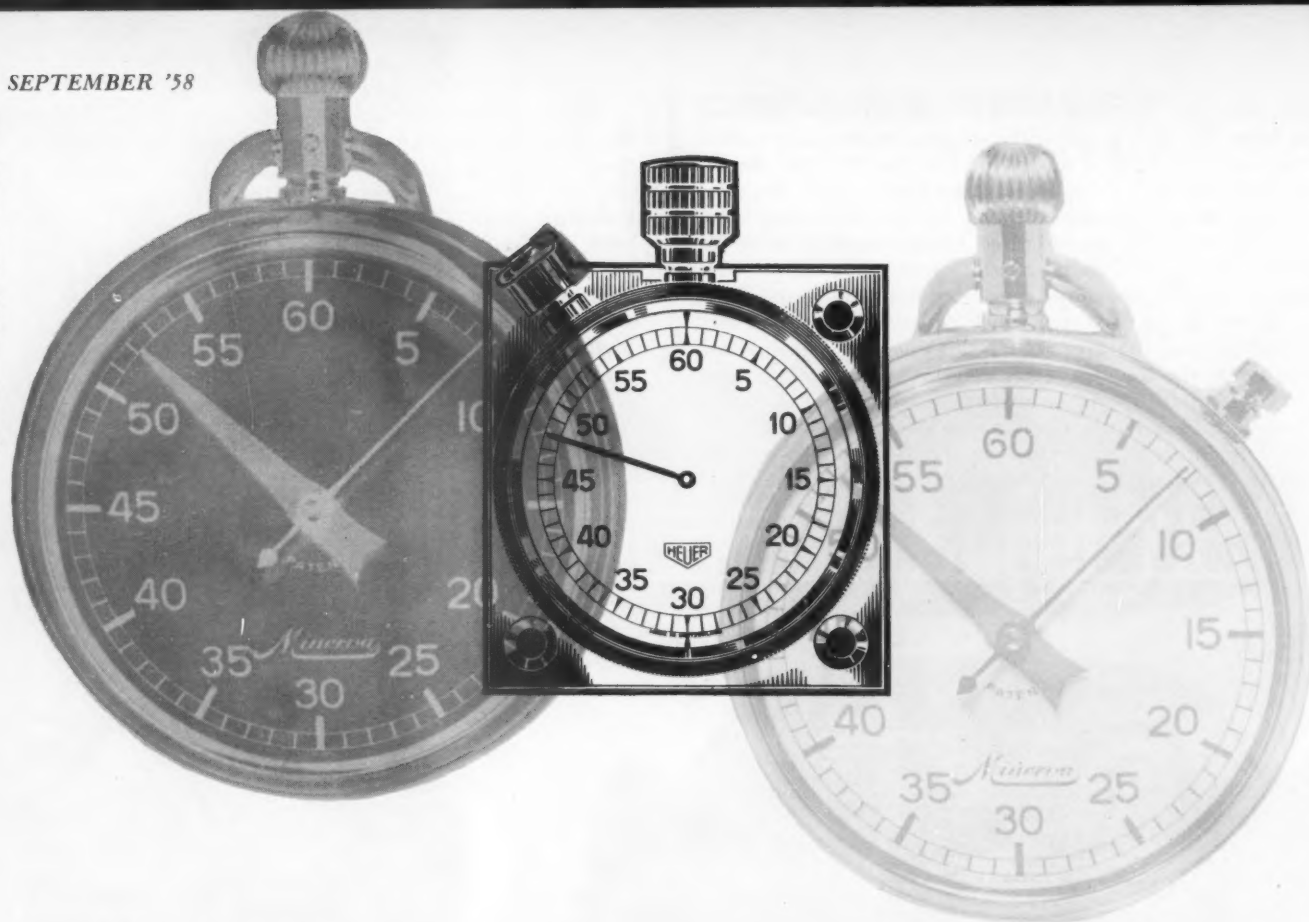
(Continued on page 58)



*Both in details and in its entirety, the Farina-bodied 4.9 Super fast is carefully thought out and beautifully executed. Fittingly, the registration plate reflects the owner's enthusiasm. Finding an abandoned traffic circle, below right, we gave vent to our own enthusiasm, making lap after lap at indecently high speeds.*



SEPTEMBER '58



## Stopwatches and Chronographs

### ... How To Choose Them

by Griff Borgeson

#### EDITOR'S NOTE:

This article, which to the best of our knowledge is a publishing "first," would not have been written without the co-operation of the following experts, whose aid we gratefully acknowledge:

Feldmar Watch Co., Los Angeles — Prominent specialists in precision timing.

Mr. Arthur Peck, New York — Broadcasting network executive and co-author of the excellent book, "Sports Car Rallies, Trials and Gymkhanas."

The Watchmakers of Switzerland, New York — Spokesmen for the Swiss Watch Industry.

A COUPLE OF millenia ago when the only racing vehicles were chariots, the driver who crossed the finish line first had the satisfaction and glory . . . in that event. As for how fast he lapped, this could be judged only in relation to the performance of his fellow contestants. Water clocks and hour-glasses were unsuited to measuring relatively short intervals and the concept of record time did not exist. The time-based comparison of separate performances was impossible.

Following the perfection of the first successful stopwatch about a century ago, sport as well as science and industry, gained an all-important tool. For the first time, anyone could measure time accurately and easily in fine increments. To this day, nothing can compare with the stopwatch for economy, portability and ease of operation unless it's the chronograph, a regular timepiece incorporating stopwatch features. In the field of motor sports, one or the other is practically essential.

Anyone who races must have one; anyone who attends races can use one. But of the hundred or so stopwatches and chronographs on the market, which is the right one for you? The decision is greatly simplified when the facts are sorted out.

The motor that powers this class of machinery is a main-spring that develops about 0.000,000,01 bhp. It can tolerate very little friction above that which it's designed to work against. The tiniest increase slows it down and introduces error; a little more and the machine stops. "There's no substitute for inches," meaning brute strength, applies to watches as well as to cars. A speck of dust in a ladies' peanut-size wrist watch can freeze the mechanism. But specks of dust in a big watch are much more easily thrust aside by the bigger, more powerfully-driven parts and are much less likely to perturb the performance.

To reduce friction, in the interest of consistent performance and long service life, watches have bushings and bearings. The cheap route is to make them of metal but the best results by far are obtained when they are made of the hard stones termed jewels. Today these are almost always bits of synthetic ruby, smooth as a mirror and harder than steel.

For reasonably accurate and permanent performance no stop watch should have fewer than seven jewels. Because of their smaller size and weaker power sources, wrist watches should have more. Usually, 17 are quite enough. Don't be too readily impressed by small watches with higher numbers of jewels. Like horsepower, they have rabble-appeal, and



there exists the costly, over-jewelled watch in which lubricant space is sacrificed for gimmickry.

Of the seven or more jewels in any good stop watch the most important are the two rectangular rubies on the escape-lever. There is a day-and-night difference between this construction and the cheap steel-pin lever. Pin-lever watches are at the bottom of the quality scale and cannot compete on grounds of accuracy, friction, or wear. They often are described ambiguously as having "seven jewel movement," whereas they do not have jewels in the most important place. Pin-lever watches are ideally suited to the user who doesn't mind swapping accuracy for rock-bottom price. But to anyone interested in timing in its more critical aspects we emphatically recommend genuine jewelled-lever design. Demand it.

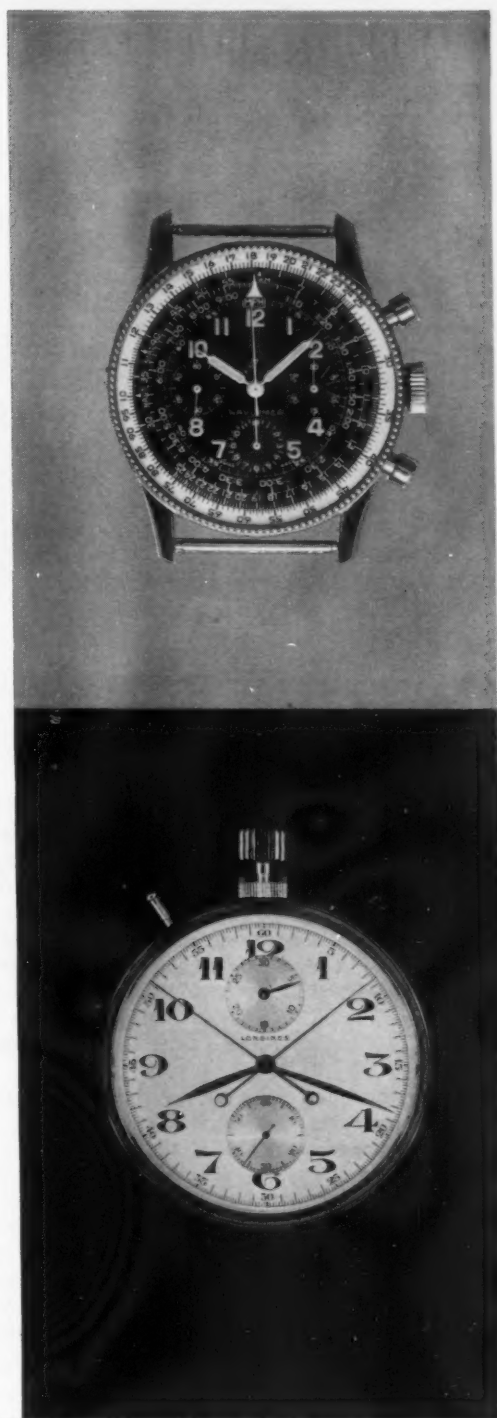
Armed with this information you can be pretty sure of getting a timer of good quality. The accuracy you buy is proportional to the number of jewels, other things being equal.

A seven-jewel stopwatch can be adjusted to give an error of no more than six or seven seconds over a 12-hour period and this, for most auto-racing applications, is negligible. If you want greater accuracy you must pay for more jewels and more complexity.

Having learned some fundamentals of quality-discrimination we can now face the question, "Which type to choose?" It's a big question. In catalogs chosen at random, one lists 41 types; another lists 81.

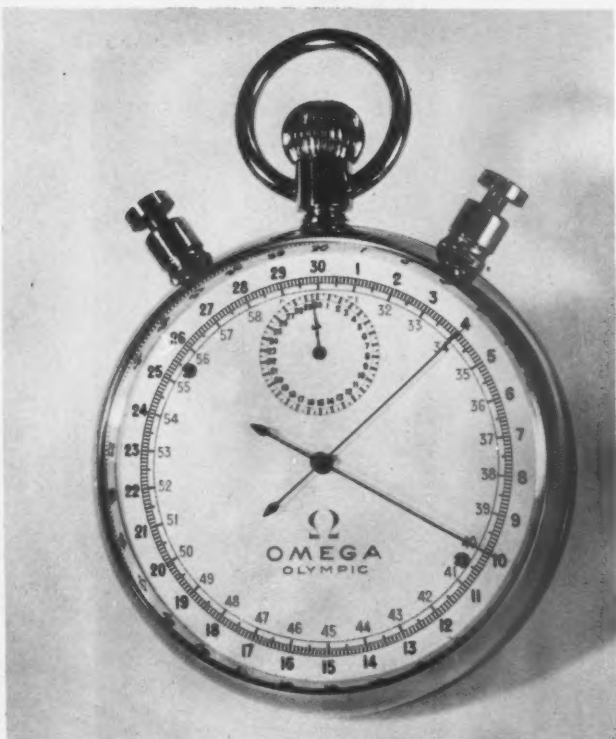
The basic rule is, the briefer the duration of the event being timed the faster the timer required. For example, if you want to time quarter-mile acceleration runs the ideal instrument is a 1/100th-sec. timer. It gives you two-decimal accuracy and its small register dial is more than adequate to cope with the accumulated time. To use a 1/5-sec. timer with its far longer register in such a case just doesn't make sense. You're giving up accuracy for no reason.

*Minerva 350R exemplifies the basic pocket chronograph. A versatile timepiece, it has 1/5th-sec increments, and registers 30-min.*



*Wakmann's Navitimer, by Breitling of Switzerland, a navigational timepiece, includes a slide rule at dial's periphery.*

*Longines classically-elegant chronograph with split-action features 1/5th-sec increments. It also gives the correct time of day.*



*Omega split-second or split-action timer functions as two watches; ideal for timing two laps simultaneously.*

There are two basic types of 1/100-sec. timers. Minerva makes one whose sweephand makes a dazzling one revolution per second. Its small dial registers every second up to 30; its dial is calibrated in 100 equal and very legible divisions. Other makers — Longines, for example — offer a 1/100-sec. instrument which makes one sweephand rev in three seconds and has a dial split into 300 divisions. But it registers three minutes in six-second increments. This makes it suitable for timing laps on most U. S. road-racing courses. The Minerva is not, due to the very limited time it can accumulate on its register.

While on this subject let us say that the impression is quite widespread that "a stopwatch stops running when its register time is used up." This is not the case. The register or recorder hand keeps rotating as long as there is energy in the mainspring.

The amount of accumulated time that a stopwatch can register is related directly to the balance wheel's beat: the slower the beat the longer the register, and *vice versa*. And, the slower the beat the less fine the calibration. If you want a long register you will have to settle for a slow-beating watch with relatively gross increments on its dial. Here is generally what you have to choose from:

INCREMENT IN SECONDS	SECONDS PER SWEEPHAND REV.	REGISTER CAPACITY
1	60	60
1/5	60	12h
	60	60m
	60	30m
1/10	30	30m
	30	15m
	10	10m
1/50	30	5m
	6	3m
1/100	3	3m
	3	2m
	3	1m 30s
	1	0m 30s

The slower watches — the 1/5 and 1/10 — are the most universally useful and used and they have the virtue of being the least expensive. Their increments are sufficiently fine for the great majority of automotive applications and these are the watches used most widely here and abroad for lap-timing both oval track and road races, where lap times exceed one minute. For shorter intervals, as in drag racing and quarter-midget racing, the 1/100-sec. timer is more appropriate.

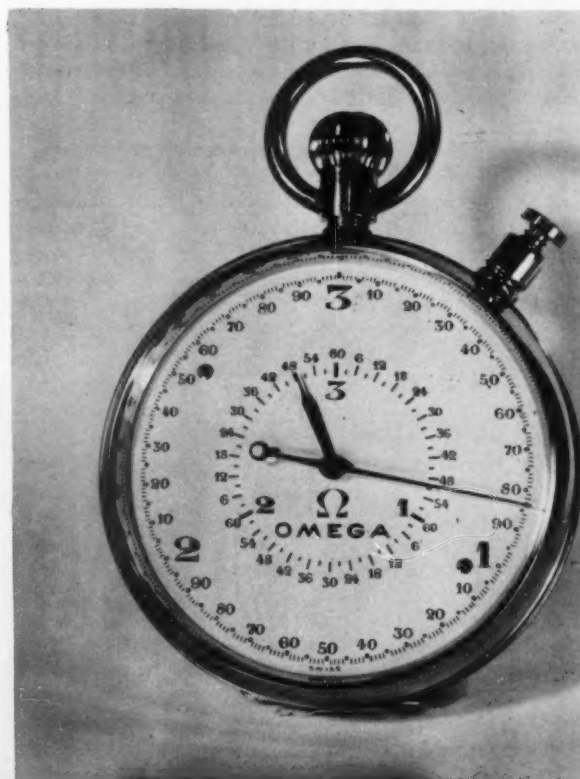
Stopwatches differ greatly in speeds and they also differ in the features that they incorporate. One which has found very wide acceptance in the automotive field here and abroad is the one-sec. timer with full-size red hand which registers up to 60 minutes on the big dial, while the black sweephand ticks off the seconds on the same dial. The great virtue of this instrument is the ease with which it can be read at a glance. Minerva and Heuer (pronounced hoy'-er) make highly popular instruments of this type.

Then there are the various methods of actuation. The most common one is that whereby both sweephand and register hand are started, stopped and returned to zero by successive depressions of the winding crown. In many stopwatches and chronographs one or two of these operations is performed by means of a "time out" slide or push-button on the side of the instrument. This permits the hands to be stopped and then re-started without having to cycle back through zero. In timing a practice pit stop, for example, this feature can be used if the main action is temporarily interrupted. An aircraft pilot keeping track of his actual flight time would use it during fuel or passenger stops.

The choice of slide or button depends upon personal requirements. Buttons often make a clicking sound which may get on a sound track or spoil a psychological test, whereas slides are silent. But buttons are worked easily, even by gloved hands. Slides are seen rarely in automotive circles.

An extension of the time-out feature is the split-second or split-action timer. In a real sense it is two stopwatches in

*Omega MG1136 is a typical 1/100th second timer with 3 sec. sweep; ideal for timing races of short duration.*

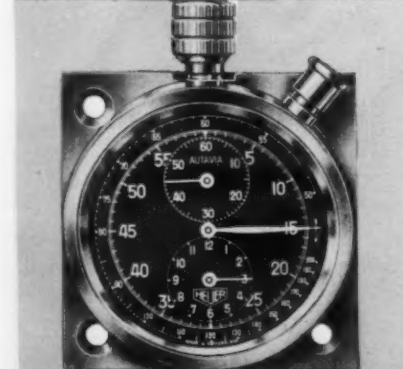




*Longines 5087 1/10-sec. timer permits a register three times the duration of decimal timers. 30 sec. sweep over 30 min.*



*Split-action timers merit attention from auto racing fans. Swapping duration for readability, Longines 4357 rec. 15 min.*



*Heuer's Autavia-Tachy has fine calibrations in 1/5 sec, includes tachymeter scale. Had in either 1-mi or 1-km calib.*



*Patek Philippe, the "Rolls-Royce" of watch industry and then some, makes this chronograph for about \$2000.*



*Longines 6592: pure, simple, effective. Outer scale is kilo-based tachymeter, gives direct-speed over measured dist.*

one. It has two large hands which are perfectly superimposed when in motion until the button controlling the "split hand" is pressed, causing it to stop, while the main sweep-hand runs on. A second push of this button causes the split hand to catch up instantly with the main hand.

The split-second watch is a natural for racing. It was a favorite at horse tracks long before the days of the automobile. You use it like this: At the fall of the starting flag you press the crown, setting both hands in motion. At the end of the first lap you press the left-hand button. This stops the split hand and the time it shows can be noted. Press it again and the split hand re-joins the main hand. At the end of lap two, press it again. Subtract the lap-one time and you have the time for the second lap. In this way you can record both total race time and individual lap times with one watch.

Still another feature is the tachometer scale, calibrated to show the speed of a moving object, such as a car, over a known distance. This base-distance almost always is shown on the dial and usually is one kilometer or one mile — not, unfortunately, a quarter-mile. As the object being clocked enters the measured course you press the button that releases the sweep-hand and, as the object leaves the course, you stop it. It points to the average speed, which is read directly in mph or kph.

Other watches are equipped with telemeter scales, sometimes in combination with tach scales. The telemeter scale enables you to measure the distance of a phenomenon which is both visible and audible. The sweep-hand is released at the instant the phenomenon is seen. It is stopped when the sound is heard, and its position on the scale shows the distance in kilometers or miles separating the phenomenon from the observer. This calibration is based, of course, on the speed of sound at sea level and it has scant automotive utility.

Now we come to pocket chronographs. A few very good makes are Heuer, Longines, Minerva, and Omega. They are businesslike technical instruments, without frills and with a 1/5-second sweep and 30- or 45-minute register in addition to their time-of-day movement. These are widely available in this form and also with time-out feature and with the so-called split-second twin sweep-hands. I have carried one of these versatile instruments for years and would not consider going back to the conventional, limited pocket watch.

It's in the realm of the wrist chronograph where anything can and does happen. All have 1/5-second sweeps. The simplest has one small dial for a continuously-moving second hand and another for a 30-minute register. Next comes the type with a third small dial, this one registering up to 12 hours. Then comes the type that has all this, plus indicators of day, date and name of month, in case you don't know whether it's June or January. Now, as if things weren't busy enough in this tiny mechanism, the next fancier model has all this, plus indicators of day, date, feature.

Good wrist chronographs are not cheap. Minerva's most inexpensive one lists at \$84.50. Wrist chronos are far more convenient for daily use (or when driving)





## The Race Nuvolari DIDN'T Win

by Ken Purdy

**M**OST OF THOSE who remember him — and everyone who ever saw him remembers him well — think that of all the peaks in the life that Tazio Nuvolari lived with such dash and *brio*, the 1935 Nürburgring race was the highest. Rated an also-run in the pre-race estimates, mounted on an outmoded P-3 Alfa-Romeo against two full teams of Mercedes-Benz and Auto-Union monsters, Nuvolari beat them all, driving a car that was incontrovertibly 15 miles an hour slower than the opposition. Actually he beat them twice: a disastrously slow refueling pit stop let cars that hadn't been able to keep him in sight get past him as he stood in the pits, so that he had to go out and catch them all over again.

It was an almost incredible performance, but I think that Nuvolari exceeded it 12 years later, in the first post-war *Mille Miglia*, a race that he did *not* win.

The truly great are so ranked by the rest of men because they react violently to the stacking of great odds against them. The also-rans, the little men, are beaten down by adversity, and we never hear of them; and many of the near-great might have been otherwise remembered if luck had thrown crushing force against them, or if they had had the will to look for it, and challenge it. Nuvolari was happy when the odds were hopelessly high against him; he sought out such situations, and he was lucky enough, once or twice, to find them. The 1947 *Mille Miglia* was one of them.

The event itself was nearly postponed out of existence. The *Mille Miglia* had been run last in 1941, on a closed circuit, not over the road, and in some quarters there was small enthusiasm for running it again. Too, Italy had been bombed and fought over from end to end; the country was politically torn and its economy was

in chaos. Gasoline was almost unobtainable and new tires brought \$150 on the black market, when they could be found at all. Still, the Brescia Automobile Club managed to get permission to close a thousand miles of road, from Brescia down the Adriatic coast to Fano, across to Rome, then up to Leghorn, Florence, Bologna and all the way to Turin in the north and back to Brescia through Milan. The government was persuaded to set aside 20,000 precious gallons of 80-octane gasoline, and Pirelli undertook to provide tires for 245 cars at \$20 a cover. (Only 153 cars started; the other 92 entrants took their tires and their gasoline and went away happy.)

Nuvolari was 55 in 1947, and he was a sick man. It was almost impossible for him to drive in circuit races because the exhaust fumes hanging in the air so irritated his respiratory tract that he would often hemorrhage. But he had won the *Mille*



Illustration by Fred Kirberger

Miglia twice, in 1930 and again in 1933, and he wanted very much to win it a third time. He signed with the new firm of Cisitalia to drive an open two-seater running an 1100 cc engine. Piero Taruffi, who won last year's *Mille Miglia*, was on the same team. The Cisitalia was the hope of Italy in those days. The engine was basically Fiat, much worked up by Taruffi and Dusio, whose brain-child Cisitalia was. The *Mille Miglia* version developed about 60 horsepower at 5,500 rpm and would show 120 miles an hour, given a little time to wind out. The frame was light, welded molybdenum tubing, and the body, naturally, was pretty stark.

The *Mille Miglia* is traditionally run in April or May, but the 1947 event was twice postponed and it was 8 o'clock on the evening of the 21st of June when the first little Fiat 500 buzzed out of Brescia. The last car got off at 3 the next morning.

Biondetti, with a 3-liter Alfa-Romeo, was the wise-money favorite, but it was for Nuvolari, who left an hour ahead of him, that the crowd screamed the loudest cheers and crowded farthest into the road. On form, Biondetti had it made: even with the Alfa's big supercharger replaced by four double-choke carburetors (*Mille Miglia* regulations ruled out blowers) he was getting 140 horsepower, and he was a seasoned specialist in over-the-road events.

When the cars came through the control at Padua, 100 miles out, three 1100 cc Fiats were leading, the first one, Gilera up, posting an average of 83.1. By Pesaro, 250 miles from Brescia, the average was down to 72.6, Bassi's Fiat leading, and an Alfa second. Crossing the Italian peninsula from Pesaro to Rome, Nuvolari began to pile up time. The country was mountainous, the roads narrow and winding; in this

terrain the comparative lack of power to be beaten out of the little 1100 cc engine didn't matter so much as skill and the willingness to watch a wheel slide within inches of the unguarded precipices, and Nuvolari began to blast the little car past everything in sight. The first car into Rome was a Lancia *Aprilia*, but it was well down in the ruck, and the loud-speakers announced that Nuvolari was now leading on elapsed time. He had seven minutes over Biondetti in the big Alfa, he was 15 minutes ahead of the third man and 20 minutes ahead of the fourth. In Rome the drivers found pouring rain and the weather worsened steadily from there on. One after another, front-running cars began to go out: Cortese, driving a new Ferrari, blew a gasket; Villoresi burned out bearings on his new Maserati; Dusio and Taruffi of the Cisitalia team had both retired before Rome.

(Continued on page 66)



SCI ROAD TEST:

THE STOCKY MAN in the immaculate white shop coat patted the hood of the immaculate black convertible. "Take it up to six thousand in all gears — you have to wind it up for full power," he said in an accent redolent of *bier, wurst* and other forms of *gemutlichkeit*. "Don't worry," he added, "you won't break it."

We did wind it up to 6000 rpm in every gear but Fourth and we didn't break it. Daimler-Benz products have a worldwide reputation for absolute reliability and the reputation is deserved if the 190SL which we were privileged to treat as our own for a full month was any criterion.

Everything about the 190SL is designed to coddle its possessor. From a top that can be raised or lowered with one hand while cruising at 30 mph down the parkway to its rock-solid steering at any speed, there isn't one piece of shoddy or make-do workmanship in this neat sports-touring machine. Mind you, this is no racing car — though it could probably be made into one if the factory were inclined to peel off a few hundred pounds in weight, close up the ratios in the gearbox and stiffen up the springs and shocks. True, 190SLs have on occasion distinguished themselves in competition, Macau and the Nassau Islander's races for example, but these are rare instances and the circumstances involved could hardly be considered normal.

No, it's no racing car but it comes near to being the ideal car for going to and coming from races — which is just exactly what we used it for. At least one of these trips was an eleven-hour haul each way and the others ranged from six down to two hours. Further, virtually every sort of weather — springtime in Virginia to a minor hurricane in southern Maryland — was encountered and not once did we get that aching fatigue handed out by more prosaic transportation under similar circumstances.

Lest we be accused of being too lyrical, it might be pointed out that others who have lived with the 190SL share our opinions. One such is well qualified to talk. He is "Red" Byron, *quondam* professional race driver of considerable note in both pure racing cars and modified stocks and now a shop owner, foreign car dealer and *scuderia* chief. Red has owned a 190SL for

some three years and his enthusiasm for the car as a method of getting from here to there approaches reverence. During this time he has averaged well over 20 thousand miles a year and during all of this has had to adjust the carburetion once, change plugs twice, replace tires once and fit a new top once. The last item was added primarily because he preferred tan material to the original black that came with the car.

In the past many people have complained bitterly about the two mammoth twin-choke Solex carburetors hung on the side of the engine. Rather than feed a separate port per throat as might be expected from such a set-up, these are compound units, one throat in each case acting as a secondary carburetor for high speed operation. Both throats feed into one large manifold port which in turn feeds two ports in the head which is a true four-port. This has caused a lot of comment from armchair purists who would prefer to see a four-port be a four-port all the way through. Byron differs with this opinion and we're inclined now to agree with him.

"It would be different if this were a competition machine, but it's not," he says. "This is a touring machine and it's set up that way. Most people who get a 190SL feel immediately that they have to fool around with those carburetors and as a result they completely ruin the setting. There's only one way to do it — have a good Solex man set them up and then leave them strictly alone. The only playing around you should do is to move the cut-in point for the secondaries to the speed you want. After that you don't touch them."

When we first picked up our test car from Wolfgang Robinow, Daimler-Benz executive with the New York office of the company — it was his personal car — the carbs were not right and Mr. Robinow told us they weren't. He suggested we take it to the service department and have Otto Vogeler, their service chief, make things right.

Before servicing, the car would barely touch 95 miles an hour and there was a most disconcerting feeling that the throttle was sticking at that point. Actually it was an air velocity increase as the

## MERCEDES-BENZ 190SL

Photos by Don Typond

Generously lent to the staff for over a month by Wolfgang Robinow, the 190 SL served faithfully and faultlessly.







primary butterflies closed that was the villain. This increase actually opened the secondaries a little further as the throttle pedal was backed off and there was a momentary increase in revs. When Otto got through, however, there was none of this. Instead, there seemed to be no limit to the revs in the lower three gears and when the throttle was backed off the revs dropped immediately. It was like having an entirely different engine. At one point we actually edged the somewhat optimistic speedometer past the 115 mark, a point which can probably best be correctly pronounced as 109 miles an hour. With a little more space it might have squeezed a mile or two more into the hour.

Which brings us to the only real complaint we could find on the car. In a product that otherwise stands head and shoulders above other touring machinery for quality it seems strange that a full six-miles-an-hour discrepancy would be allowed in the speedometer. With everything else so letter-perfect this relatively minor fault becomes almost glaring. True, it does allow one to apparently nudge the legal speed limit and still avoid summonses but for all other purposes it requires a sort of constant mental conversion as though it had been calibrated in kilos instead of miles. Owners who are sticklers for accuracy, however, can send the instrument to VDO in Detroit, the American branch of the German concern that makes it, and have them insert a measure of pessimism to bring it down to a point of reasonable accuracy.

About the only other complaint we could dredge up in the space of a month was one that only a purist would find. For our personal reasons we felt that the ratios in the gearbox were a bit widely spaced for our liking, especially between Third and Fourth gears. Top speed in Third, with the engine literally screaming was 75 or a little better which meant that really quick passing of a vehicle moving along at 60 or better was out, at least if we wanted to downshift to Third for the job. A ratio that provided another ten miles an hour or even fifteen in Third would be welcome. Second gear with a top of 50 mph is about ideal and low is good for anything from 30 mph down to pulling stumps and climbing walls. But

that 30 to 35 mph differential between Third and top gear bothered us personally. It showed up more under circumstances that would normally not be encountered by the average owner, however. On the road it was no bother, long smooth, fast passes were made in every instance with ease. On all other counts the gearbox scores perfectly. It's butter-smooth, fast and the lever is exactly where you can reach it with a minimum of grabbing.

Everything else about the car's handling was impeccable. Daimler-Benz engineers have long felt that a car should have a small understeer tendency built in that gradually decreases up to a point then, through a fairly long transitional period of dead neutrality, passes on to a gentle oversteer. While none of this can actually be experienced by the driver its effect can be readily felt. Up to about 60 or 70 mph one must crank the wheel into a corner. As the speed rises the car has a tendency to move slightly sideways with almost an equal slip from both bow and stern — actually the true slip angle is a bit more at front than rear at this point — and then as more poke is fed to the throttle the rear end starts to move out. This last can be aggravated by horsing the throttle, a practice not recommended with the old 300SL coupes or even the new 300SL roadsters. All in all it's a very safe feeling — you know what's happening and when and if things get a bit disconcerting it's easy enough to back off and correct.

Another thing about the 190SL's handling is its feeling of *wanting* to cruise fast. Delightful as the car is at low speeds, the upper reaches of the speed range become sheer sensual pleasure. Everything lightens up and the whole car seems to live. The steering becomes seemingly lighter and more positive if such a thing is possible; throttle response gets a pinpoint accuracy and, strangely enough wind-blast lessens in the cockpit. As with all Daimler-Benz products the builders know that their cars are strong and they don't have to announce the fact with a ripping exhaust note. So it is with the 190SL; at low speeds there is at most a gentle swish and at high speeds there is a hard machine-like hum and that's all. The hum is very much a part of the feeling of liveness mentioned above.

John Christy

*Leaving Lime Rock's famous ess-bend, the gleaming black roadster grips the road firmly, the swing axle's presence evident only to those outside the car.*

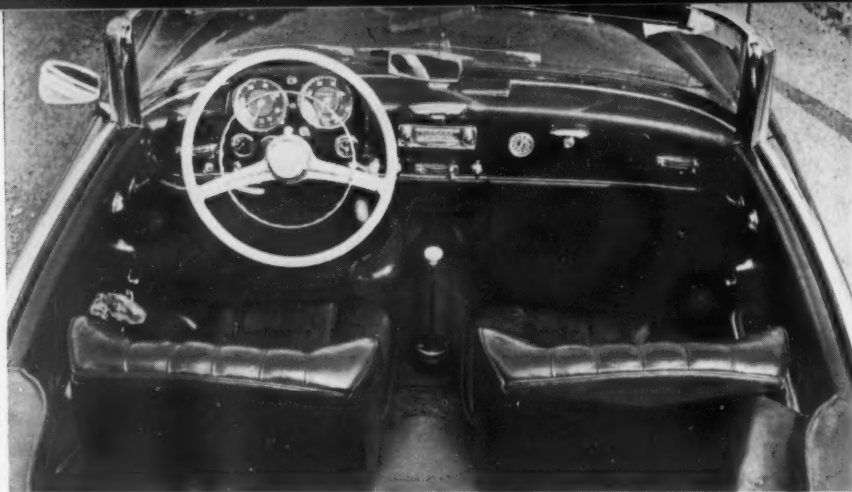


*Wearing a crash helmet belies tremendous confidence which the stable M-B inspires.*



*(continued on next page)*

*"Fully equipped" takes on a new meaning after a look at this cockpit. The heater, for instance, has three pairs of levers, not to mention a switch or two. Traditional with Daimler Benz products, the horn ring twists for signalling turns.*



FROM the feminine point of view, the 190SL is a delightful machine. To enter or leave it, one needn't assume an almost acrobatic position — shoes, dress and hat remain comfortably in place, whether the top is up or down. Once seated, one finds the car to be most comfortable, and whether driving or passengering there is a panorama of instruments lining the beautifully finished dash that all adds up to solid, easy living. Left to right they are as follows: a large tachometer (red lined at 5700) and an equally prominent speedometer — both in black with easy to read white designations. Under these are the water temperature, oil pressure and fuel gauges. At the bottom are a series of chromed pull-knobs; the heater blower control, the parking light control switch (for European parking, this switch selects either the right or left side parking lights), the head light switch, a spare knob for added accessories, the choke and finally, the windshield wiper switch. This last is a two stage affair providing both slow and fast speeds.

Directly in the center of the dash is the interior light (which lights as the driver's door is opened) and the optional Becker Mexico radio. This radio is quite fantastic. It has both medium and short wave bands, and is controlled by a signal-seeking bar. This bar can be set to pick up local, distant, and really distant stations, and the radio itself has a bass to treble control knob that actually works. The speaker is

mounted under the dash (out of the way of legs and such). A cigarette lighter and 8-day clock (installed in the lockable glove compartment door) complete the dashboard, save for the heating controls. These number three, the center control being for amount of heat, with separate top and bottom levers for the driver and passenger sides of the car. It is this vast array of heating devices that gives the novice Mercedes looker or owner a feeling that they'd better pick up a pilot's license. However, after living with the car for a few days or a long trip the levers and knobs all sort themselves out quite simply, and their uses become automatic to the driver.

Under the dash besides the usual hood release and emergency brake (both easy to find and work), is a control for a reserve gas tank (enough to get you to a gas station in any emergency), and a foot pedal that operates the windshield cleaner. When this pedal is depressed the result is a stream of cleaner and an automatic start of the wipers which turn themselves off when the job is done.

Two factors worth mention are the "back seat", and a very spacious trunk compartment. In our journeys with the car both of these embellishments were used most necessarily. For a trip to Virginia, there was baggage for three plus a bulky tape recorder. The trunk absorbed all this with no protest at all so a pit board was added, fitting in just as well. The "back

seat" is leather covered, extending from one side of the cockpit wall to half-way along the floor behind the driver's seat. The passenger sits sideways in a somewhat lounging position. It's sufficiently comfortable for someone with short legs but a tall person must draw his knees up. This seat is not recommended for extended trips. However, it's perfect for an unexpected extra passenger.

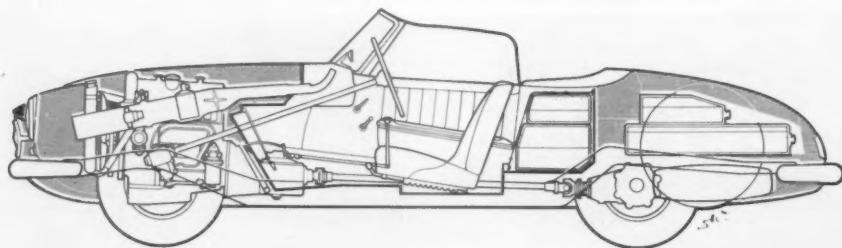
An added convenience that other marques would do well to copy is a metal plate along the transmission wall that protects that location from getting unsightly scuffs and eventually wearing out as the accelerator is used.

The windows roll up, the doors have an interior lock and the door handle is a discreet pull lever that won't be opened by accident. The mirror has a lever that reduces glare for night driving, but because it is beveled all around produces sun glare that often hits the driver disconcertingly right between the eyes. The built-in sun shades are mostly for show, as they are rather opaque and are better off not being used.

When driving the car on a twisty back road that you know is two-way the swing axle rear can provide some spooky moments. However, for a long trip there is nothing that can beat the sheer fun and safe speed of the 190SL.

If ever an automobile deserved the appellation "neat" the Mercedes Benz 190SL is that car.

*Sherrie Zuckert*



*An advantage of the low pivot rear which is making Detroit do some heavy thinking is the much reduced tunnel. A point other Europeans could copy is the vertical spare which leaves lots of room for suitcases, fitted or not.*



*Luxuriously comfortable leather seats tilt forward to let third person sit side-saddle in the back.*

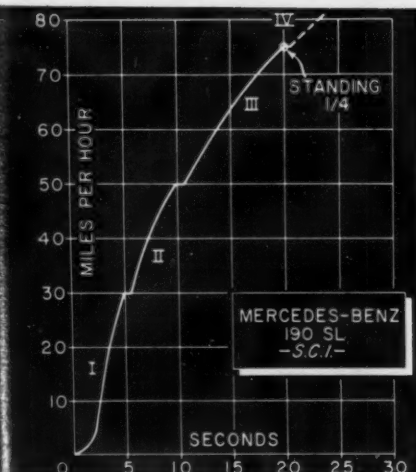
**T**HOUGH my experience with the 190SL was limited to only a few laps around Lime Rock, my conclusions also are that this is indeed the sort of car that you want for cross-country work.

The low pivot swing axles never proclaimed their independence, indeed, fast cornering on this smooth circuit brought out characteristics that seemed identical to those another sports car under test, one with a conventional rigid axle. Light (though not too light) and positive steering, with consistent responsiveness made it very delightful to drive.

Summing up, sports cars are usually

in one of two camps; they're either built for go or for show. The goingest cars, though fine for racing, are generally the least satisfactory for normal touring use, too many sacrifices having been made in the interests of more go and less dough. The showiest cars, on the other hand, generally don't go worth a darn, engine smoothness having been achieved at the expense of performance. The 190SL is one of those splendid exceptions that falls neatly in between. Despite its price, which is high on a dollar per liter basis, it is excellent value for those who want a mature sports car.

Stephen Wilder



Four cylinder brother of 300SL's power plant carries two twin-choke Solexes. For real smoothness, the progressive linkage just can't be beat.

#### MERCEDES-BENZ 190SL

Price at East Coast ..... \$5240. (incl. Fed. tax)  
Distributed through Studebaker-Packard dealers.

#### PERFORMANCE

##### ACCELERATION:

From zero to	seconds
30 mph .....	4.9
40 mph .....	6.3
50 mph .....	9.8
60 mph .....	13.7
70 mph .....	17.6
80 mph .....	23.2
Standing 1/4 mile .....	20.1
Speed at end of quarter .....	75 mph

##### SPEED RANGES IN GEARS:

I .....	0-31
II .....	15-47
III .....	25-75
IV .....	37-top

##### SPEEDOMETER CORRECTION:

Indicated Speed	Timed Speed
30 .....	27
40 .....	37
50 .....	46
60 .....	57
70 .....	66
80 .....	75
90 .....	84
100 .....	94

##### FUEL CONSUMPTION:

18.5 mpg

#### SPECIFICATIONS

##### POWER UNIT:

Type .....	Water-cooled, in-line four
Valve Operation .....	Single overhead cam, skewed valves
Bore & Stroke .....	3.34 x 3.30 in (85 x 83.6 mm)
Stroke/Bore Ratio .....	1.02/1
Displacement .....	116 cu in (1897 cc)
Compression Ratio .....	8.5/1
Carburetion by .....	Two Solex 44PHH double choke side drafts
Max. Power .....	120 bhp (SAE) @ 5700 rpm
Max. Torque .....	107 lbs-ft @ 2800 rpm
Idle Speed .....	600 rpm

##### DRIVE TRAIN:

Transmission ratios	I.....3.52
	II.....2.32
	III.....1.52
	IV.....1.00
Final drive ratio .....	3.89
Axle torque taken by .....	trailing arms

##### CHASSIS:

Wheelbase .....	94½ in
Tread, front and rear .....	56 in
Front Suspension .....	Coil springs and wishbones
Rear Suspension .....	Coil springs, low-pivot swing axle
Shock absorbers .....	telescopic
Steering type .....	recirculating ball
Steering wheel turns L to L .....	3¼
Turning diameter, curb to curb .....	36 ft
Brakes .....	Servo assisted, 2LS front, finned cast iron drums
Brake lining area .....	150 sq in
Tire size .....	6.40 x 13

##### GENERAL:

Length .....	166 in
Width .....	68½ in
Height, top up .....	52 in
Weight, as tested .....	2800 lbs
Fuel capacity .....	17.2 U. S. Gallons

##### RATING FACTORS:

Specific Power Output .....	1.04 bhp/cu in
Power to Weight Ratio .....	23.3 lbs/hp
Piston speed @ 60 mph .....	1770 ft/min
Braking Area .....	107 sq in/ton
Speed @ 1000 rpm in top gear .....	18.6 mph





# ferrari DINO 246

by Jesse Alexander and Karl Ludvigsen

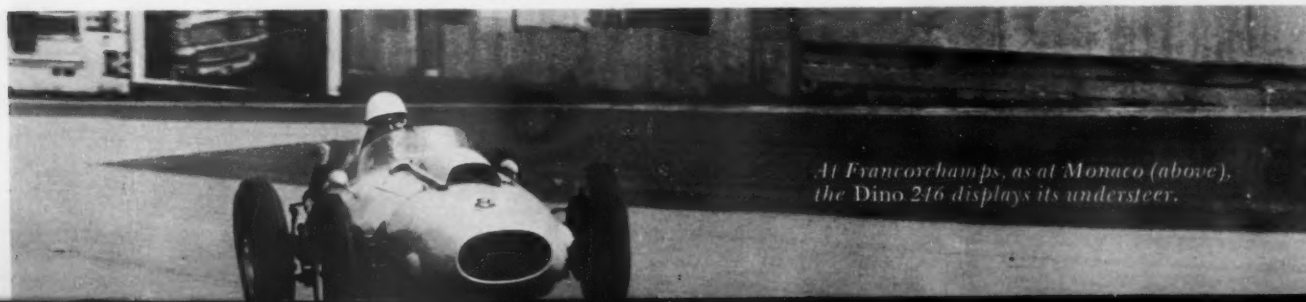
**I**N A RECENT INTERVIEW, Johnny Lurani asked Enzo Ferrari why he hadn't been testing disc brakes and fuel injection in his race cars. Totally in character, Ferrari replied, "The injection comes from Germany and the disc brakes from England. Neither one has arrived in Maranello yet..."

In time, the mountain may come to Mohammed. Until then, Maserati, Ferrari and the whole closely knit automotive design community of northern Italy will continue to swap, interchange, expand and otherwise inbreed their creations along well-established blood lines. Ferrari's Grand Prix cars must be reliable—perhaps a better word is "Predictable"—as well as fast, but above all they must be practical. Cheap to build, by racing standards. Easy to tear down, overhaul and button up with only a small staff. The *Dino* 246 is all these things seasoned with some new twists that may have crept in from England after all.

The first rumors concerning a basically new Ferrari single-seater cropped up during the summer of '56, as Enzo's new vee-six for Formula II went into early testing at Maranello. A complete car was first seen in late April of 1957, when Hawthorn, Musso and Collins broke in the prototype on Modena's airport course. Several days later this "Little Lancia" was entered in the twisty Grand Prix of Naples. Enzo took Musso aside and told him to thrash the daylights out of the car. Luigi proceeded to throw it around to such effect that he came within 1.7 seconds of Hawthorn's record lap, set in the latest version of the big D50 V-8.

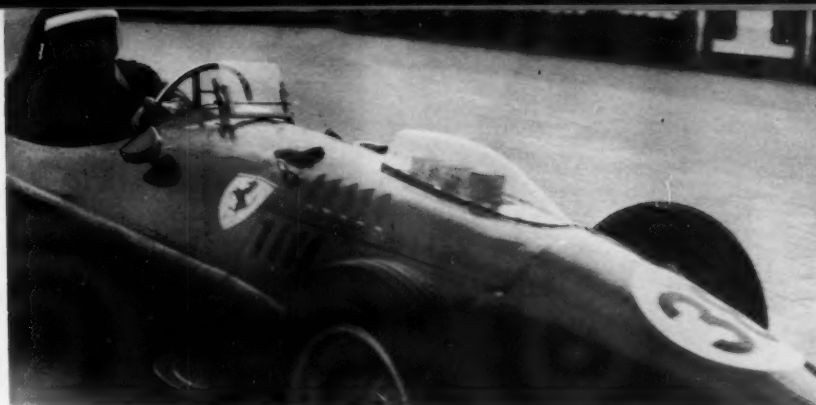
This was very encouraging, so the prototype was brought up to Monte-Carlo. All the team drivers tried it one day in practice and found it much more agile than the D50. It was easier to drive on the fast, downhill sections, but naturally it lacked "soup" storming up the steep Monaco hills.

Only once did this car actually engage in Formula II



At Francorchamps, as at Monaco (above), the Dino 246 displays its understeer.

*Hawthorn, wearing face shield but no goggles, uses only old-style aero-screen. It helps visibility past the tall plastic bubble.*



Photos by Jesse Alexander

competition. Although it won eventually, it was so harassed at Rheims by two Cooper-Climaxes that Ferrari decided to put it aside and concentrate on Formula I. When the home-town Grand Prix of Modena rolled around in the end of September, a new and revised chassis had been built and the vee-six had been given the "internal explosion" treatment. One engine now had 2200 cc and the other 2417 cc. The twin magnetos had been moved from front to rear of the intake camshafts, requiring that the steering column and gearbox be shifted from the left to the right side. A full-bore G.P. car was now very much in evidence.

Running well at Modena, the two cars sailed for Casablanca and the fast, smooth, sandy Grand Prix of Morocco. In practice the 2.4 edition (Collins) couldn't get nearer than four seconds to the best Vanwall time, put up by Tony Brooks. Running on aviation fuel in preparation for the 1958 season, the Ferraris got better gas mileage than either the Maseratis or Vanwalls — which were still inhaling alcohol — and thus came to the starting line with over a third less fuel in their tanks than their rivals. It was this advantage that allowed Collins to hold the lead until his bout with Asian flu took control and he spun off the course. Hawthorn's bad luck included a damaged piston and split gearbox, maladies which must have provided lessons for this year.

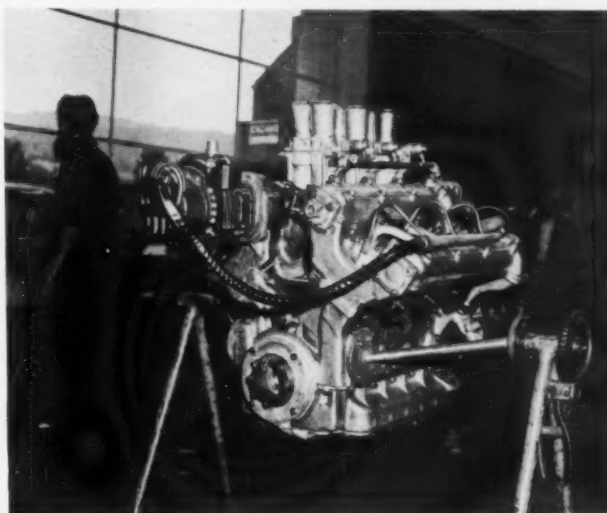
Basically the same cars encountered the Cooper-Climax hoodoo again in Argentina, where Moss won the first race of the '58 series. Running very well, Musso's Ferrari was but three seconds behind at the checker, while Mustard Mike again had problems.

For the last two years the Syracuse Grand Prix in April has exhibited the latest from Ferrari, and has usually set the pattern for the rest of the season, so far as the Maranello cars are concerned. This time Musso made it in a walkaway against private Maserati opposition. The car at this point looks like the final version of the 1958 Grand Prix Ferrari, if such a thing can be said to exist.

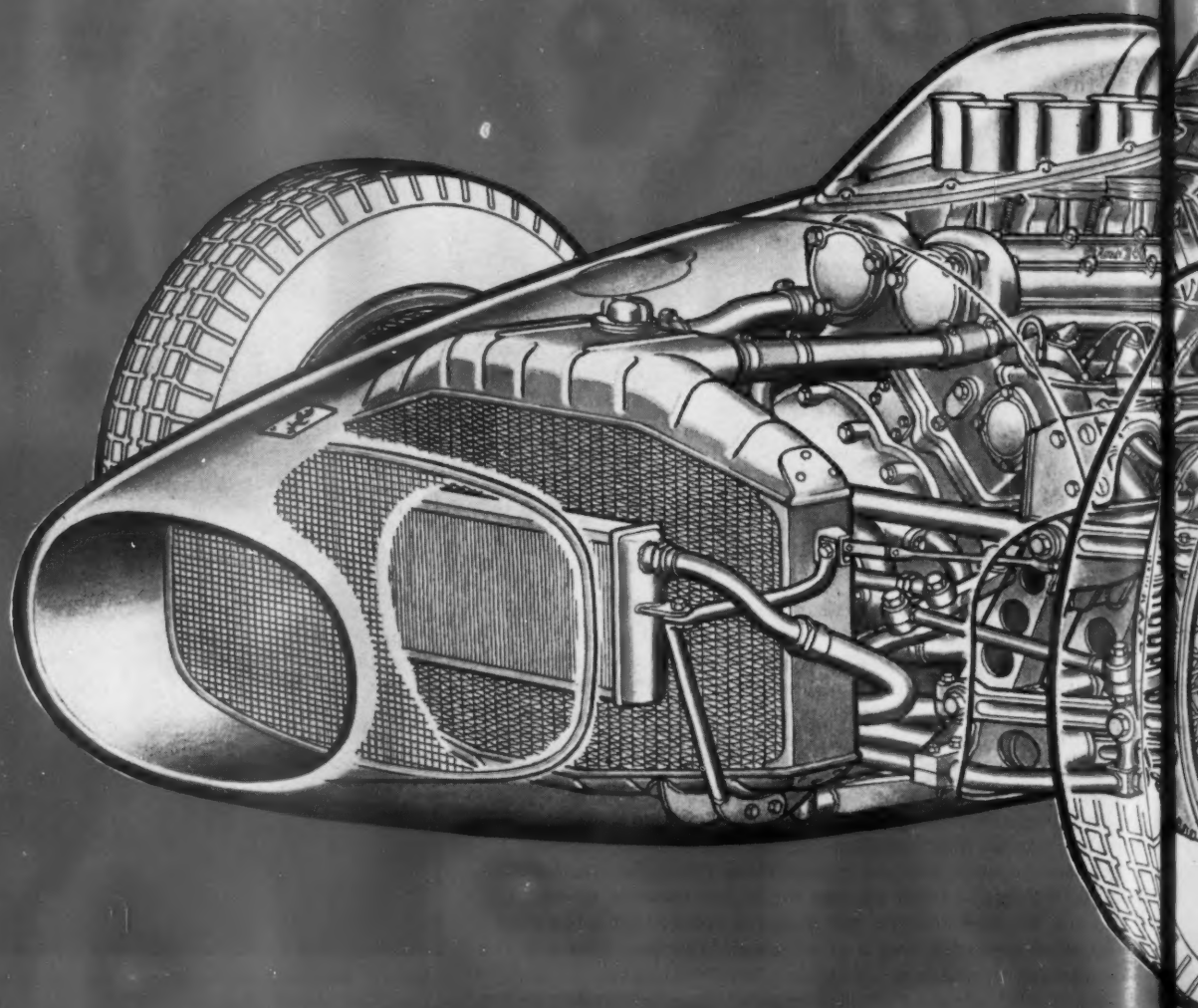
Following the death in 1957 of Enzo Ferrari's son, a young engineer of great promise, the exciting new series of vee-six engines has been named in his memory. The car numbering system has also been revised. Once the numbers — 166, 340, etc. — stood for the displacement in cc of each cylinder, but now the first two numerals refer roughly to the total displacement in hundreds of cc's and the last designates the number of cylinders.



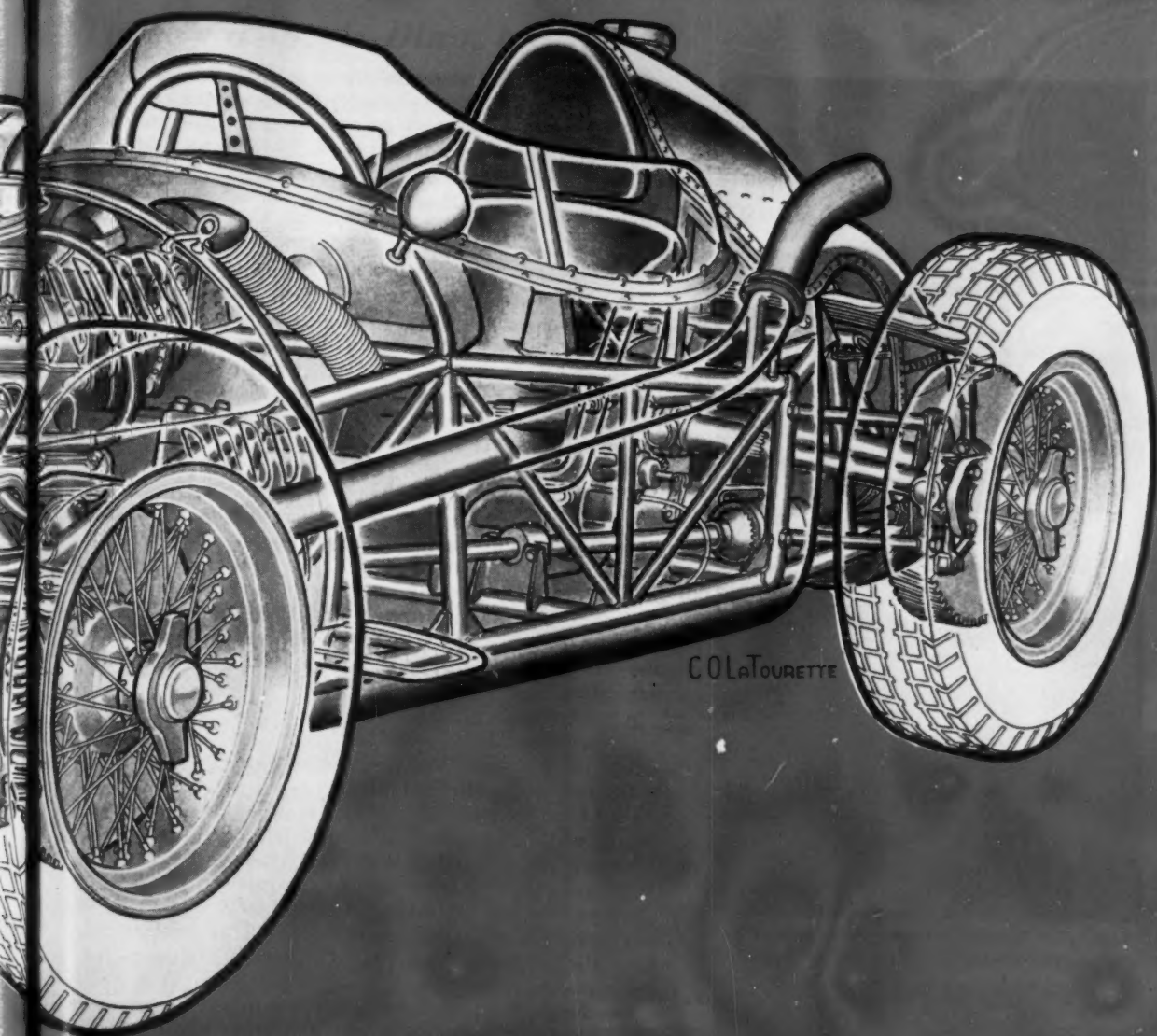
*Newest model has metal air scoop which certainly doesn't simplify problem of seeing where you're going.*



*Fully assembled engine is compact and powerful. Unlike Hawthorn, Collins chose goggles, old-style screen plus aerodynamic one.*







COLA TOURETTE



Sturdy dual-ignition V-6 has four separate studs per cylinder, with no doubling up at central barrel.



Bevel gear-like in appearance, Dino's brake drums are wholly cast iron and very wide.

New names and numbers are fully in order with this engine. Yes, Detroit, it's a vee-six. It's the engine you said would shake itself apart if it ever ran at all. Now that we take a look at this engine and its background, we feel that the surprising thing is not that this powerplant is a vee-six, but rather that the Lancia D50 was *not* of that pattern! The line of descent is clear, and the touch of Vittorio Jano shows in every turn and twist. It begins, for our purposes, with the Lancia Aurelia, is picked up by the four-cam Lancia sports/racing cars, is carried mechanically by the V-8 D50, and matures in the Dino series.

Points of similarity include the wet-liner's location, in which all the liner clamping is handled between the cylinder head and a counterbore about an inch down in the block. Gasketing, previously avoided by Ferrari through the use of screwed-in liners, is handled by a copper-nickel insert. Also familiar is the angled split of the connecting rod big-ends, for removal through the bores, and the typically Jano mushroom tappets which screw onto the valve stems for adjustment. The cams for each head are spun by a separate Duplex roller chain, another Jano touch, but instead of running straight across between the cam sprockets, the chain is pulled down around an intermediate idler as in the Jaguar. This of course brings many more chain rollers in contact with the cam sprockets and thus improves load distribution and minimizes wear.

A much-marveled-at point is the use of a 65+ degree angle between the cylinder banks, as opposed to a more proper spread of 60 degrees. We tend to be more surprised when an Italian engine adheres to the norm in such matters. After all, the Lancia vee-fours can hardly be said to have any angle at all, while Fiats two-liter V-8 was split by 70 degrees, seemingly just for the hell of it. In Dino's case, the increased angle was chosen to allow more room for intake piping and carburetors down the middle. Looking further, though, a 120 degree vee is just as suitable for six cylinders and would have allowed both a low profile and plenty of space for induction apparatus.

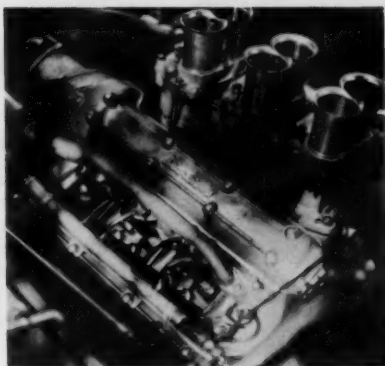
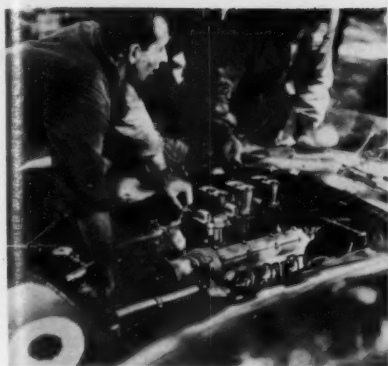
Development seems to have progressed in two basic stages. The prototype engine had a bore and stroke of 70 by 64.5 mm, for a liter and a half. Before the '57 Modena G.P., the block and head castings were both altered in detail around the cylinder head joint and between the banks, to make room for a much bigger bore—namely 85 mm. This new-type block is being used for all the latest Dino variations, from two to three liters in size. Since Ferrari's Formula II program this year is to be abbreviated at best, he may continue to use the early block for those cars.

As we remarked before in SCI, the top end of this engine is obviously closely related to the current four-cam V-12

(Continued on page 50)

Typical Ferrari GP rear suspension—de Dion with high leaf spring. Tach reads to 10,000!





The Dino 206 sports engine differs slightly, having smaller bore, dual magnetos.

The late Luigi Musso at Naples in the 206.

## There's a sports Dino, too . . .

**F**ERRARI is doing what many guessed he had in mind when the vee-six's potential first became obvious. This remarkable engine is being distorted in many ways to provide new contenders in sports car class racing, including a three-liter for the Manufacturer's Cup. First manifestation of this program was the *Dino 206*, a two-liter sports car which was seen for the first time in April at Goodwood with Peter Collins, and two weeks later at Naples.

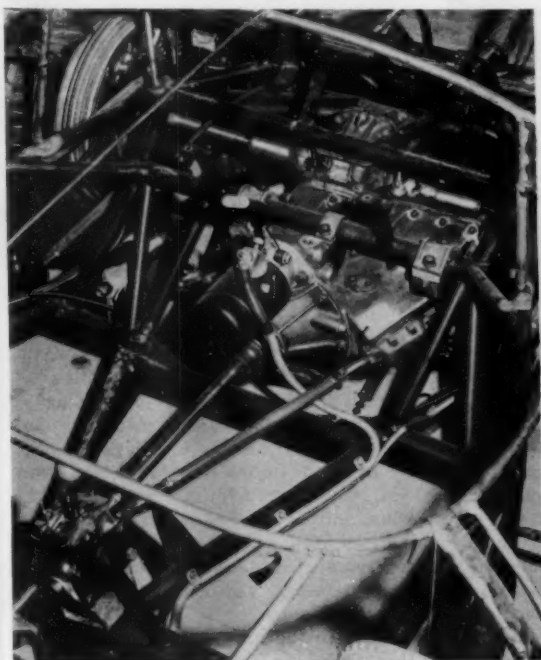
This Dino variation uses the 246 crankshaft but has a smaller bore of 77 mm. Its output is quoted as 225 bhp, which would be a new high for Class E. The clutch and four-speed box are in unit with the engine, while the rear axle and suspension are ordinary live *Testa Rossa*. This assembly is mounted in a new chassis, basically twin-tube with a very high trussed superstructure. With steering box and wheel on the left, the whole front end is lifted from the Grand Prix car. At 1500 pounds dry, it's a rugged, *Mille Miglia*-style machine, with neat conventional bodywork and a metallic interpretation of the G.P. car's plastic carb shroud.

The juggernaut of the family is the Dino 296. This three-liter edition has been united with a new de Dion rear end layout plus a rear-mounted gearbox and, possibly, clutch. We have few details on this major car yet but it should be on hand for the Nürburgring and Le Mans, where we can track it down further. It was scheduled to debut at Silverstone on May third.

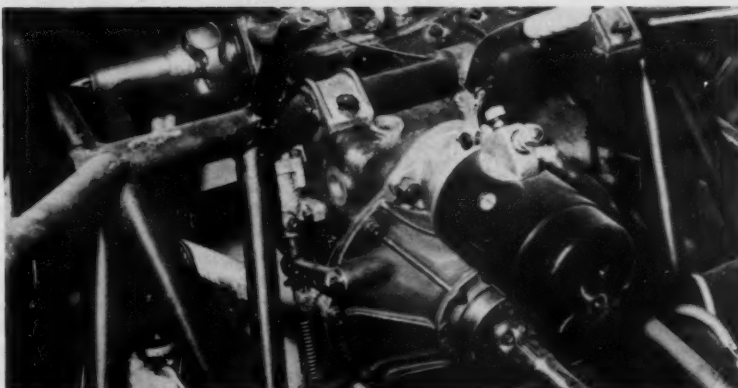
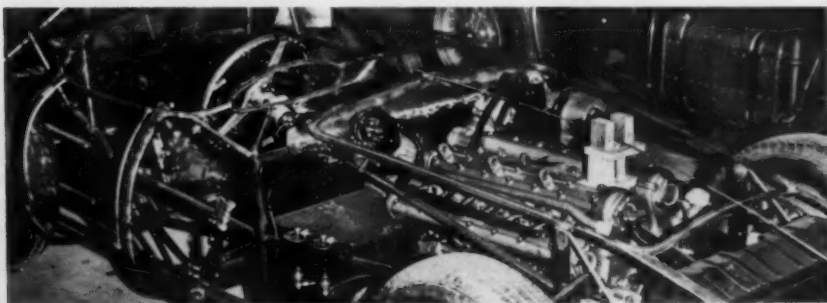
Most unusual feature of this car is its wholly new rear end. Its clutch, Lancia-style, is at the rear, hydraulically operated. The gearbox shafts appear to be placed in a horizontal plane, extending across the car (the split at the back of the case probably coincides with the secondary shaft). It has five cogs forward. Lancia-type splined halfshafts are used, as on the 246 GP car too.

The starter is mounted on the gearbox above the clutch, and the spring-loaded handbrake-like lever above it is arranged to engage the starter pinion and actuate the switch with one brutal motion. Nothing to jam or fail here.

Intended to carry the 296 V-6 eventually, this new chassis was first equipped with a four cam three liter V-12 for its first races.



Above and right, that simple, direct starter rig looks like a La Mans speciality. Remember '54?





# 1958 GRAND PRIX

## RETIREMENTS:

Moss	Vanwall	over-revved engine
Collins	Ferrari	overheating
Musso	Ferrari	blown tire—left road
Behra	BRM	low oil pressure
Brabham	Cooper	overheating
G. Hill	Lotus	broken connecting rod
Gregory	Maserati	blown piston
Seidel	Maserati	rear suspension

## RESULTS:

1. Tony Brooks	Vanwall	1 hr. 37:06.3
2. Mike Hawthorn	Ferrari	1 hr. 37:27.0
3. Stuart Lewis-Evans	Vanwall	1 hr. 40:07.2
4. Cliff Allison	Lotus	1 hr. 41:21.8
5. Harry Schell	BRM	23 laps
6. Olivier Gendebien	Ferrari	23 laps
7. Maurice Trintignant	Maserati	23 laps
8. Roy Salvadori	Cooper	23 laps
9. Joakkim Bonnier	Maserati	22 laps
10. Mlle. de Filippis	Maserati	22 laps
Fastest lap: Mike Hawthorn	(Ferrari)	3'58.3" = 132.2 mph

## BEST PRACTICE TIMES:

Hawthorn	Ferrari	3:57.1
Musso	Ferrari	3:57.5
Moss	Vanwall	3:57.6
Collins	Ferrari	3:57.7
Brooks	Vanwall	3:59.1
Gendebien	Ferrari	3:59.3
Schell	BRM	4:04.2
Brabham	Cooper	4:05.1
Gregory	Maserati	4:05.4
Behra	BRM	4:06.2
Lewis-Evans	Vanwall	4:07.2
Allison	Lotus	4:07.7

## THE RACES . . .

by Jesse Alexander

**L**AP SPEEDS at Francorchamps went well over the 130 mph mark this year, requiring not only high power output for extended periods, but also calling upon the drivers for the exercise of a skill not needed on other road circuits. Rather like Indy with its need for continual concentration, in fact.

The Royal Automobile Club of Belgium spent an impressive amount of money on their Francorchamps circuit during 1956 and '57, extensively widening and improving the 8.8 mile circuit as well as rebuilding the entire pit area and constructing a new timekeeping tower. The result is not only one of the most beautiful road circuits in Europe, but the fastest and most challenging to both car and driver.

First practice was on Thursday, lasting from 6 till 8 PM, the long summer evening allowing plenty of daylight at these hours. Participating were Ferrari, Vanwall, BRM, and Cooper; late arrivals Lotus and Maserati having not yet appeared. Early laps were spent in finding out where the major alterations had been made to the circuit and discovering the optimum line through the several 100-mile-plus bends.

As time went on, lap speeds went up—until Jean Behra in a BRM got into a full lock slide going into the fast "S" halfway down the Masta straight. Behra just managed to keep things sufficiently under control to make the car to stay on the road, sliding on full lock first to the right then to the left, finally spinning completely around several times and narrowly missing a very solid Belgian farmhouse. Behra must have been doing well over 150 when this started and was lucky to get away with such an episode. Slight damage to the radiator and steering was the result but parts were quickly flown out from England.

Francorchamps is no child's circuit at all. But it is an excellent place to watch the top Grand Prix drivers really show how high speed cornering can be done. The first outstanding training lap was put in by Stirling Moss on the Vanwall, 4:04.8", with the only yardstick available for the new circuit being Gendebien's time of 4:09 in a 4 liter Ferrari sports car. But it was

expected that the Formula I cars would get down to well under 4 minutes—if not in the race, certainly in training as they scrapped for starting grid positions.

Near the close of the first day's practice, we began to notice that Mike Hawthorn was lapping very quickly in the Ferrari *Dino*, and by the end of training he had set fastest time at 4:00.6. It was obvious that no one would let this stand for long.

As expected, the Ferraris were going even quicker by Friday. But in actual fact it was Moss (Vanwall) who first set the timekeepers on their ears by breaking 4 minutes—and by a healthy margin, too. Three minutes, 57.6 seconds was his time but the noisy approval from the crowd on hand was drowned by the sound of Hawthorn's Ferrari accelerating rapidly away from the pits, with you-know-what in mind. Mike fairly flew. Ferraris were

## D'EUROPE

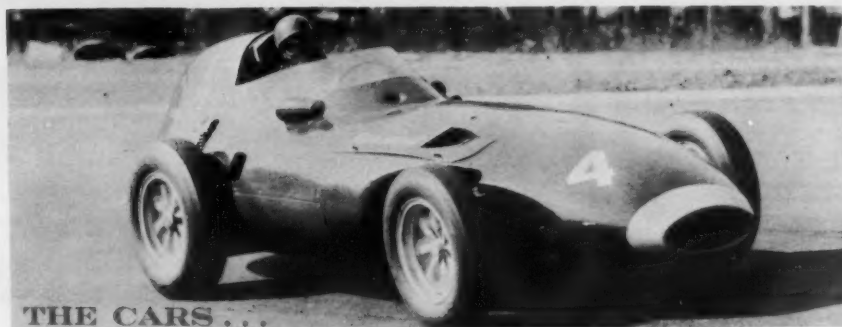
obviously *au point* at Francorchamps and fully in their element, for as Mike came in after having done a stinging 3:57.1, Luigi Musso was next off the mark — surprising everyone with a 3:57.5. But the real shocker was yet to come. On Saturday afternoon, the young Belgian, Oliver Gendebien, the newest driver on Ferrari's G.P. team, went out in his Ferrari and decided that it was now or never to show that he was a full-fledged member. "On his ear" all the way around the circuit, he was certainly trying. Watching from the end of the Masta straight, we saw the yellow Ferrari come flying through the "S" and hurtle down the last half of the straightaway, overtaking several slower Maseratis. Gendebien left his braking till the last, down-shifted for Stavelot corner and then rocketed through the super-fast bend at well over 100 mph. The result was an extremely creditable 3:59.3, making him sixth fastest. The next six, though close to each other, were in a quite separate group, their times ranging from 4:04.2 to 4:07.7.

Another surprise at Francorchamps was the weather, for it did not rain a drop, brilliant sunshine being right to order for the Belgians — who this year enjoyed the honor of putting on the Grand Prix d'Europe because of the World's Exposition in Brussels. Disorganization at the start, however, caused tempers and cars to overheat considerably. The timekeepers prolonged the warming up period for over 4 minutes — as a result the Ferraris on the front row were over-heating like mad. In the melee of roaring engines, shouting officials, frustrated mechanics and drivers, a huge pool of water appeared under Collins' car. Much of the coolant boiled

(Continued on page 53)

Photos by Jesse Alexander

"Double Exposure" shows Moss in lead on Eau Rouge bridge, followed by Brooks, Collins into up hill right.



THE CARS ...

by Karl Ludvigsen

SOMEHOW, Tony Vandervell has built himself a well-balanced, nicely integrated race car. I say "somehow" because it's fashioned from a most unlikely collection of components: front end and gearbox descended from Ferrari; brakes from Goodyear; chassis and back end from Lotus; an engine made out of four Nortons, and a body that looks like a turbine nacelle from a Viscount. It's quiet by G.P. standards, high in the tail for stability, and goes very, very fast, especially so (170 plus) on flat-out circuits like Spa.

At Spa the Vanwall's engine was basically unchanged but some detail changes were being tried on the exhaust side. On Moss' car only, the triangle of studs that clamps each exhaust flange to the head was inverted so the point was upward. One possible reason is that the newer arrangement leaves more room for air flow around the exposed valve springs. This one car also had a supplementary breather hose from the top of the left-hand gear case (exhaust cam) to a baffled riser on the oil tank. This car was the only one without the new header tank system. With or without the tank, all Vanwalls have thermostats and bypass piping. A new touch on some engines is a lettered "Vanwall" on the exhaust cam covers, and as a long-term note, a more conventional cylinder head with enclosed valve springs and integral camboxes is being considered seriously but is not just around the corner. The economies in assembly time and effort would be huge.

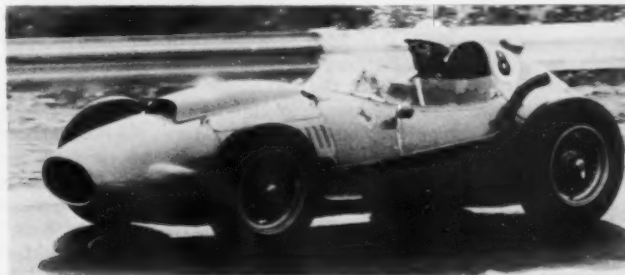
Brooks (Vanwall), 1st Grande Epreuve.



Brooks, Moss, and Tony Vandervell.



Gendebien (Ferrari) jumped into front rank of GP drivers.



Snake-pit-like engine compartment.



In respect of chassis, two Vanwalls had the new front brake scoops which first appeared at Zandvoort. They lead air to the center of the disc, whence it is centrifuged outward through the cast radial holes. On this very fast course, the team was debating the relative merits of wire and disc wheels, there being some question as to whether the flexibility of wire wheels could induce a significant steering change. They ended up with discs all around.

(Continued on page 52)



All Saabs are shipped to Boston, tubular framing permits stacking without crating.

**G**ETTING INTO THE SAAB 750 *Granturismo* after driving around in the everyday 93B is a startling change. They look the same, in many respects they are the same, but they sure go different!

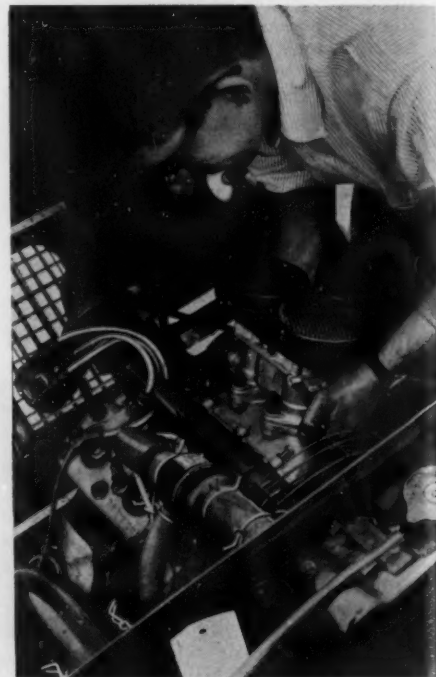
A few years ago, before SAAB (Svenska Aeroplan Aktiebolaget) had really started merchandising their cars here in America, they presented, for viewing only, the *Sonnet*, a cute little roadster with plastic body and a red hot version of their "drei-zylinder zweitakt". In full racing trim with twin choke Solex, the engine poked out a full 57 bhp (SAE). This same power unit is now offered in the 750 GT, although for civilized road use, a single choke 40 PAI Solex is fitted. This reduces output to a "mere" 50 bhp (SAE) and with especially small jets and venturis, full throttle smoothness may be retained as low as 2600 rpm. With the full 57 hp kit, which includes a bellowing straight pipe, the outfit requires careful nursing with the throttle foot below 3400 revs. Open it wide and you're dead. To make matters more difficult in this respect, the ring and pinion are changed to increase top speed potential. (They had to.) The gearbox ratios, all indirect, are identical to those of the 93B (which, incidentally were listed incorrectly in our test of it). With the higher degree of tune, a fourth speed and a general re-shuffling of ratios would be very welcome. As it is now, even with the de-tuned set-up, a congested parkway cruising speed of 40-50 mph is awkward to maintain. Either you're lugging uncomfortably in third or the engine's alternately screaming, then idling in second. Yes, idling, for the free-wheeling should *always* be used. This ensures that

you don't spin the engine at high revs while feeding it only an "idle" amount of oil with a nearly closed throttle. But I must admit that in that screaming second gear, the 750 GT really jumps out and goes! With its big, comfortable body, it's hard to believe that performance like this comes from only 46 cubic inches. Maybe the Swedes use extra-potent inches.

The engine, already described in our May issue, has beautifully polished, enlarged ports compared to the 38 bhp 93B. As for mocking onlookers who say, "Wot, no valves?" the proper rejoinder is, "Observe, friend, the single overhead fanshaft."

Changes to the interior of the Saab include some fascinating items for improving comfort and promoting interest in what's going on. Wide, fully reclining individual seats with an adjustable headrest for the passenger provide splendid quarters for long-distance rallying. Though not contoured much for lateral positioning — there's always the steering wheel (wood-rimmed) and a grab handle to take care of frantic moments — a thin cushion on adjustable straps is located on each seat back. Raise or lower it to suit the small of your back, and you can sit there all day. But, please, anyone who goes motor-ing competitively can do without the lint-gathering mohair upholstery. Easy to dirty, hard to clean.

Just as the driver can entertain himself by dancing the tach needle back and forth, the passenger can make up for tedious turnpike landscapes by twirling knobs on the *Halda Speed Pilot*. It contains an odometer which can be read to hundredths of a mile (with bifocals) — though ours moved rather unevenly. There is also a speed dial reading from 25 to 90



Chris Custer slips on larger carb, new manifold between test runs

Cornering technique is full bore throughout bend. On Saab though, backing off is no more unsettling than on rear wheel drive cars.





# SAAB 750 GT

Price at East Coast POE ..... Car: \$2568.  
 Tuning kit: \$ 148.  
 U. S. Importer ..... SAAB Motors, Inc.  
 465 Park Ave.  
 New York 22, N. Y.

## PERFORMANCE

### ACCELERATION:

From zero to	seconds	with "Tuning Kit"	seconds
30 mph	5.6	4.2	
40 mph	6.8	4.8	
50 mph	12.9	9.7	
60 mph	18.5	13.9	
70 mph		26.7	
Standing 1/4 mile	21.3	20.6	
Speed at end of 1/4	63 mph	69 mph	

### SPEED RANGES IN GEARS: (2800-6500 rpm for full throttle)

I	13-31
II	27-63
III	43-top

### SPEEDOMETER CORRECTION:

Indicated Speed	Timed Speed
30	27
40	36
50	45
60	54
70	66

### FUEL CONSUMPTION

30 mpg

## SPECIFICATIONS

### POWER UNIT:

Type	water-cooled in-line
Bore & Stroke	three cylinder two-stroke
Stroke/Bore Ratio	2.59 x 2.87 in (66 x 72.9 mm)
Displacement	1.11/1
Compression Ratio	46 cu in (748 cc)
	9/1

Carburetion by ..... One Solex 40A1 (Tuning Kit: 44PII)  
 Max. Power ..... 50 bhp (SAE) @ 5000 rpm  
 (57 bhp with kit)  
 Idle Speed ..... 700 rpm

### DRIVE TRAIN:

Transmission ratios	test car	optional ratio
I	3.16	
II	1.57	
III	0.96	
Final drive ratio	4.86	(5.43 on 93B)
Axis torque taken by	transverse links	

### CHASSIS:

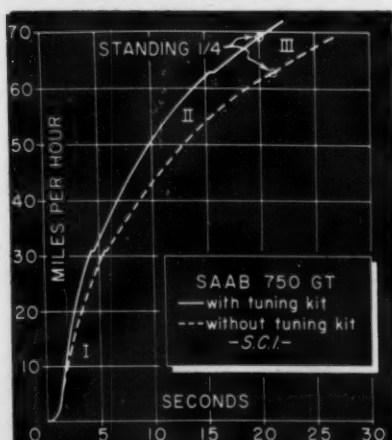
Frame	Unit-construction of pressed steel
Wheelbase	98 in
Tread, front and rear	48 in
Front Suspension	Coil springs, transverse links, anti-roll bar
Rear Suspension	Coil springs, U-shaped rigid axle, center pivoted
Shock absorbers	Telescopic
Steering type	Rack and pinion (14:1)
Steering wheel turns L to L	2 3/4
Turning diameter, curb to curb	36 ft
Brakes	Hydraulic, 2LS front
Brake lining area	105 sq in
Tire size	"155 x 15"
Rim Size	4J x 15

### GENERAL:

Length	158 in
Width	62 in
Height	58 in
Weight, as tested	2100 lbs
Fuel capacity	9.5 U. S. gallons (Use 1 qt SAE 40-50 oil to 6-8 gallons of gas.)

### RATING FACTORS:

	without kit	with kit
Specific Power Output	1.05 bhp/cu in	1.24
Power to Weight Ratio	42.9 lb/hp	36.9
Piston speed @ 60 mph	1860 ft/min	
Braking Area	100 sq in/ton	
Speed @ 1000 rpm in top gear	15.5 mph	



Quick-release shoulder straps are hooked to door, can't hang outside.  
 Fully reclining seats have sliding pads for the small of your back.  
 Derrington wheel, to be dished on later GTs, highlights loaded dash.

mph and a clock; all may be reset at any time, the odometer to zero or multiples of 111, the latter two to any value. A red "minute" hand on the clock, which you set originally to coincide with the real minute hand, is driven by the odometer at a rate equivalent to the average speed chosen on the left hand dial. As a result, it shows when you should be (or should have been) where you are now, in order to have maintained the selected average.

At the start of each new leg, the red and black minute hands may be re-synched and at any time the average speed may be changed.

The rest of the GT's instrumentation is the same as the 93B's with one exception. Mysteriously, the "low on gas" warning light is removed from the fuel gauge, making the planning of fuel stops at bit more difficult. These stops must be planned, because the two stroke mill requires the addition of one quart of oil to six gallons of gas (eight if you're not lead-footing it) and, since oil comes in quart cans, you don't want to refill unless you've room for at least six gallons. But neither do you want to run out. Forty or fifty weight oil is currently recommended by Saab engineers. We recommend GT owners carry their own, as 5W-20 and 10W-30 seem to have swept the country.

Two items of interest are in the back seat area. Side panels have been changed to include arm-rests; the tops of which, it turns out, lift off to disclose hiding places for cokes, beer and other picnicking consumables.

On the two cars we drove the rear seat was none too comfortable, being high, flat and hard. Even our shortest friends complained of cricks in their necks after a short trip. Evidently made this way specifically to beat some FIA rules on back seat size (when is a touring car not a

sports car?), our objections and others' have already convinced SAAB to use something more comfortable on later cars.

Standard fittings are the shoulder harnesses for the two front seats. They provide an interesting contrast to lap belts, passing over your outboard shoulder, diagonally across your chest and past your hip. Though offering less lateral support, they provide better protection against crashing into the dash or out the forward-opening doors in the event of a head-on collision.

Pirelli Cinturatos increase the tenacious cornering ability a further notch. Like the Michelin X, they have metal-reinforced treads. To match the increase in go-power, the front brakes, already turbo-finned, are nine instead of eight inches in diameter. Big an improvement as this is, we feel a small change in relative braking effort front and rear would be a good move for it would eliminate the too early locking up of the back wheels. This phenomenon was so severe as to render our usual brake test impossible.

Summing up, we have been very critical of a myriad of small details. Why? Only because we like the car so very much. It is a real contender for SCCA Class 1 (production) honors, not to mention its superb qualifications for rallying, yet it is still entirely suitable for shopping for the oft-mentioned groceries, albeit at a slight loss of tractability.

Like those of our founding fathers, the SAAB activities are concentrated in thirteen states, all in the northeast where winter driving conditions play up the front wheel drive's singular advantages. Production quantities do not justify spreading out further, which is a pity for those who don't live in the lucky thirteen. They just don't know what they're missing.

Stephen Wilder

# RACE ROUND UP

## LIME ROCK JUNE 14-15 1958

### Race One

#### Class 1

1. George Arents
2. George Reed
3. George Constantine

#### Class 2

1. George Fogg
2. David Knott
3. Dan McNally

#### Class 3

1. Ray Saidel
2. Richard Tolland
3. Howard Hanna

### Race Two

#### F Modified

1. Robert Holbert
2. Denise McCluggage
3. Dick Thompson

#### G Modified

1. Frank Baptista
2. Floyd Askov
3. Paul Richards

### Race Three

#### G Production

1. John Clapps
2. George Fogg
3. Harry Budlong

#### H Modified

1. Candy Poole
2. John Igleheart
3. William Speed

#### H Production

1. Richard Tolland
2. Howard Hanna

### Formula III

1. Paul Richards
2. George Alderman
3. Lex Dupont

Ferrari 250 1 o/a  
Ferrari 250 2 o/a  
Aston Martin 3 o/a

Alfa 1300  
Alfa 1300  
Porsche

Jomar  
D.B.  
D.B.

Porsche RS 1 o/a  
Porsche RS 2 o/a  
Porsche 3 o/a

Elva  
Lotus MK XI  
Cooper 1100

Alfa 1300 V 1 o/a  
Alfa 1300 V 2 o/a  
Alfa 1300 V 3 o/a

PBX  
Nardi  
Crosley Spec.

D.B.  
D.B.

Cooper  
Cooper  
Cooper

### Race Four

#### E Production

1. Harry Carter
2. Jordan King
3. Harold Hurlley

#### D Production

1. Richard Thompson
2. Col. Fred Moore
3. John Gogate

### Race Five

1. Emil Puplidy
2. Edward Hoyos
3. Sherman Decker

### Race Six

#### B Production

1. Fred Windridge
2. Tom Kerr

#### C Production

1. George Arents
2. Walt Hansgen
3. George Constantine

### Race Seven

#### C Modified

1. Walt Hansgen
2. Bob Oker
3. Fred Windridge

#### D Modified

1. Allen Markelson
2. Joe Giubardo
3. James Jackson

#### E Modified

1. John Fitch
2. Gaston Andrey
3. Frank Baptista

#### F Modified

1. Bob Holbert
2. Denise McCluggage

AC Bristol 1 o/a  
AC Bristol 2 o/a  
TR-3

A-H 100/6 3 o/a  
A-H 100M  
A-H 100/6

Porsche Carrera GT 1 o/a  
Porsche Carrera GT 2 o/a  
M.G.A. 3 o/a

Corvette 1 o/a  
Corvette

Ferrari 250 GT 2 o/a  
Jag. XK 150 S 3 o/a  
Aston Martin

Lister Jag 1 o/a  
Aston Martin DBR-2 2 o/a  
Lister Corvette

Aston Martin D-B  
A-H Spec.  
A-H 100M

Maserati 200S  
Ferrari TR  
Ferrari TR

Porsche Spyder 3 o/a  
Porsche 550RS

## ELKHART LAKE JUNE 22, 1958

### Race One

#### F Production

1. Chuck Rickert
2. Den P. Wester
3. Dean Causey

#### G Production

1. A. Clinton Lundberg
2. Harlan Schwarts
3. Brooks Robinson

#### H Modified

1. Oliver C. Schmidt
2. Martin Tanner
3. James Broadwell

### Race Two

#### E Modified

1. J. V. Quackenbush
2. James Johnson
3. Robert J. Gary

#### F Modified

1. Don Sessler
2. Bobbie Donnor

#### G Modified

1. Chuck Dietrick
2. Robt. Benson
3. J. O. Kilburn

### Race Three

#### C Production

1. George Reed
2. George F. Gunther
3. David Causey

#### D Production

1. Ralph Durlan
2. John O'Connor
3. Albert Niblack

#### E Production

1. W. C. Steele
2. Don Zeek
3. Harry E. Pick

### Race Four

#### C Modified

1. Walt Hansgen
2. Ed Crawford
3. John Staver

#### D Modified

1. Dan Collins
2. Augie Pabst

#### B Modified

1. Ritch Lyeth
2. Jack C. Baker

#### B Production

1. Jim Jeffords
2. Bob Spooner
3. Jack Knab

Porsche Carrera 1 o/a  
Porsche Carrera 2 o/a  
Porsche Carrera 3 o/a

Alfa  
Alfa  
Alfa

Mitchell-Crosley  
Martin T.  
Jabro

Ferrari TR  
Ferrari TR  
Ferrari Mondial

Porsche 550 RS 1 o/a  
Porsche 550 2 o/a

Elva Mark 3 3 o/a  
Lotus II  
Lotus Le Mans

Ferrari 250 GT 1 o/a  
Jaguar XK-140  
Jaguar XK-140

Austin Healey 100-6  
Austin Healey 100-M  
Austin Healey 100-M

AC Bristol 2 o/a  
AC Bristol 3 o/a  
AC Bristol

Lister-Jaguar 1 o/a  
Lister-Jaguar 2 o/a  
Lister-Jaguar

Ferrari TR 3 o/a  
Ferrari TR

Hy-Tork Special  
El Torro Special

Corvette  
Corvette  
Corvette

## RIVERSIDE JUNE 29, 1958

### Race: Production under 1500 cc.

#### F Production

1. Donald Dickey
2. Jimmy Moore
3. DD Michelmore

### Race: Production under 1500 cc.

#### E Production

1. Bill Love
2. Ronnie Bucknum
3. Jim Fouch

#### D Production

1. Richie Ginther
2. Jack Breskovich
3. Carlton Beal

#### B Production

1. Andy Porterfield
2. Tony Settember
3. Bob Dickson

### Race: Modified under 1500 cc.

#### H Modified

1. Bill Evans
2. William Molle
3. Perry Peron

#### G Modified

1. Chuck Schroeder
2. Jack Nethercutt
3. John Biehl

#### F Modified

1. Jack McAfee
2. Ken Miles
3. Dusty Miller

### Race: Ladies

1. Josie McLoughlin
2. Linda Scott
3. Mary McGee

### Race: Modified over 1500 cc.

#### Formula Libre

#### E Modified

1. Ken Miles
1. John Timanus
2. Chuck Kessinger
3. G. Duncan/C. Haworth

#### D Modified

1. John Von Neumann
2. Wm. deCrefft
3. Bob Bondurant

#### C Modified

1. Bob Oker
2. Richie Ginther
3. Dick Morgenson

Porsche Carrera  
Porsche GT Carrera  
Porsche Spd Car GT

A C Bristol  
Porsche Spd  
A C Bristol

Ferrari GT 1 o/a  
Austin Healey  
Mercedes 300SL

Corvette 2 o/a  
Corvette 3 o/a  
Corvette

Lotus Fiat  
Fairchild Panhard  
Aurth Zagato

Lotus Climax 3 o/a  
Lotus Climax  
Cooper Climax

Porsche Spyder 1 o/a  
Porsche Spyder 2 o/a  
Maserati

Ferrari 250 TR  
Porsche RS Spyder  
Ferrari GT Cpe.

Lap-Talbot

Lotus Climax S/C  
Maserati Spyder  
TR-2

Ferrari TR 3 o/a  
Aston Martin  
TR-2

Aston Martin 1 o/a  
Ferrari 2 o/a  
Morgenson Spl.



by Jesse L. Alexander

**T**HE 1958 ADAC 1000 Kilometer sports car race on the German Nürburgring gave Stirling Moss the opportunity to put on a really typical "Moss demonstration run," as he and Jack Brabham repeated Aston-Martin's 1957 victory. From the very start, as the two leading green cars shot out a second or two ahead of the first Ferrari, it was Moss and Brabham leading Mike Hawthorn's Ferrari a merry chase. Mike and Peter Collins drove their 3 liter Testa Rossa as hard as they dared but still could not close on Moss. Hawthorn had, in fact, been fastest in training with a sensational sports car lap time of 9'43.1.

The 'Ring itself was several miles per hour faster than last year, with further resurfacing smoothing out the bumpy portions down past the pits and other points on the circuit as well.

As in all 1958 sports car events, there was considerable speculation before hand on how fast the 1½ liter cars would go and how close to the overall winner they could come. As it turned out, bad luck plagued both 1½ liter teams, with all the RS Borgwards retiring from mechanical failure. The Behra-Barth RSK Porsche was lapping well under 10 minutes when it went out with valve gear trouble. But Nürburgring "master" Richard Von Frankenberg, teamed with Count Carel de Beaufort on a conventional RS Spyder, finished fifth overall besides winning their class at a new record speed.

After the race was over, a row of spotless red Ferraris, all that had finished the race, lined up in front of the pits making an impressive sight and a real tribute to Ferrari's current 3 liter Testa Rossa. The Dino 296 had been left at home, as well as a new twin cam V-12 3 liter that produces over 310 bhp at 9000 rpm. All the Ferraris were conventional Testa Rossas, except for de Dion rear axle and gear box at the back, save one, the Gendebien-Trips car which was a cross between the new Dino and the TR, for it had the Dino chassis

and running gear but was fitted with a Evans were in fourth position when a slower car cut in front of Brooks and he was forced to leave the road. Aston-Martin have beefed up the output shafts from the gear box/differential unit since the Targa Florio failure, and apparently have the problem licked, but the Salvadori retirement was caused by a malfunction in the selector mechanism.

Stirling drove his Aston well and was at the wheel for 36 out of the 44 laps. Needless to say, he was extremely tired at the finish and complained of fumes and a heavy oil spray in the cockpit of the car during the last half of the race. Team manager Reg Parnell had decided to put Brabham with Moss, since he wanted to have Brooks and Moss separated. It was Brabham's first time behind the wheel of a hairy-legged sports car — as well as his first time at the Nürburgring — so he was in a very hot spot. But Jack held up his end well, despite the fact that Mike Hawthorn caught up with the Aston while Brabham was at the wheel. But excellent 12 cylinder engine tied directly to the GT gear box.

Tire failure plagued both Hawthorn and Phil Hill, the latter had a stone poke through one of his, forcing him to change a wheel out on the circuit after a nasty spin. Hawthorn just plain wore out a tire chasing the Aston and arrived at the pits in a terrific haste as mechanics ran about trying to find the proper jack to get the car off the ground.

Ferrari handling and road holding still is not perfect, but as Phil Hill says: "pretty damn good." Watching how badly an old Monza Ferrari behaved on the 'Ring made one realize just how much progress has been made at Maranello in chassis design over the years.

Of the three works Astons that left the starting line, the Moss-Brabham car was the only one to finish. The Salvadori-Shelby machine retired at the end of its third lap with a broken gear box and

Carroll never did get behind the wheel of the car. Tony Brooks and Stuart Lewis-pit work and practically rolling driver changes more than made up the difference.

Technically, the race was interesting only from the standpoint of the 1½ liter cars. Great progress has been made by Borgward in improving their 1500 cc sports car. Bosch injection, alterations to both intake and exhaust manifolds, cutting weight wherever possible, all have made the machine more potent. The factory claims an honest 150 hp and Hans Herrmann got the car around in 9'58.6". The sad thing is that Borgwards are not really engaged in serious all-out competition; taking part in no more than one or two races a year plus the hill climb championship does not really build a reliable race car. The potential is there, only time is needed to sort out the bugs. Road holding is not quite as good as that of the Porsche RSK and besides this, it is common knowledge that the latest Spyder engine is producing in excess of 150 bhp; dry weight of both machines is the same.

Experiments in training with a "finned" and "un-finned" version of the RSK Porsche proved that a higher degree of stability was apparent on the faster portions of the circuit on the finned machine. The latest RSK rear suspension (coil springs and low pivot rear axle) has increased the machines' traction, but it would seem that the ratio of sprung to un-sprung weight has not been improved, as all the drivers complained that the car left the ground more than felt comfortable on severe bumps, particularly at the rear.

Ecurie Ecosse star was Masten Gregory, who actually got a D type to lap under ten minutes on the Nürburgring.

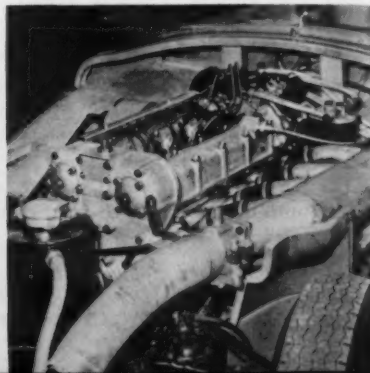
So the finishing order by "marque" in the first 7 places was: Aston-Martin, Ferrari, Ferrari, Ferrari, Porsche, Ferrari, Porsche. Ferrari, has nearly cinched the '58 sports car championship, but Aston-Martin and Porsche are not giving up without a real tussel.

Locking front brake spun Gregory off when in sixth place. Fractured fence post nearly broke off wheel, then smashed his head-rest.



Photos by Lyle York

Borgward; 4 cylinders, fuel injection.





## SCI ROAD TEST:

*MORGAN "plus four" COUPE****In Body And Chassis THE IMMUTABLE MORGAN***

***Hews To A Vanishing Status Quo, But Its Power And Performance Put It In The Sports Car Avant Garde.***

**"L**O AND BEHOLD, up popped Lew Spencer in the Morgan again! Spencer, who enjoys the role of giant-killer with his green machine, presently leads MotoRacing's Pacific Coast sports car racing point standings in the Production Over 1500 cc category, pacing such marques as 300SL, Corvette and Porsche."

Commenting on this startling notice in a recent issue of our friendly contemporary, Morgan-importer Rene Pellandini said, "Sure, it's fantastic. Also, Barbara Windhorst has been mopping up consistently well for Morgan in ladies' events, beating Lotus, Corvettes and all comers. But let's face it, we've got a good combination working: the TR3 Morgan, good drivers, and, in Claude Brun, a mechanic in a million."

Since its introduction in 1951 the Morgan Plus Four has come up from behind inconspicuously but steadily to become an outstanding racing contender both outside of and within its class. The race-worthiness of the 1951 chassis with its 40 year old sliding-pillar front suspension was largely kept hidden by its reliable but mere 68 bhp Standard Vanguard engine. Then in 1954 the Plus Four was offered with either the Vanguard or the 90 bhp TR2 engine, the latter providing a 32 per cent increase in output with no increase in weight. Pounds per horsepower dropped from about 27 to 20 and the Plus Four suddenly seized power in the 2-liter production class . . . except in the presence of AC- and Arnolt-Bristols. Then, in '57, the Plus Four acquired the TR3 100 bhp engine and became even more of a bomb on the street or road course, resulting in its high position today — not just in its class, but in overall standings as well.

High-point man Lew Spencer has been a Morganatic since '53 and he has owned one each of the three versions

of the Plus Four just described. There were just over 3,000 miles on the odometer of his new, TR3-engined, red convertible coupe when we rendezvoused at the SCI's desert-mountain test area in the Southwest. Along for the ride and to put miles on a new machine was young Claude Brun. He is Pellandini's top go-fast mechanic, and first barked his knuckles as an apprentice in a racing garage in his native Cannes, on the French Riviera. His mount was Baby Doll Number 3, a shiny green Sebring-type Morgan competition roadster. With only 65 miles on its engine, test runs were out of the question.

With a full tank of fuel the convertible weighs nearly 2,100 pounds, making it the heaviest car Morgan has built. But even so it pulls only 20.7 pounds per horsepower, wringing wet, and is a torrid package even with our test car's numerically-low axle ratio of 3.73.

Taking first things first, entry is easy and is far from being a shoe-horn operation. Under the leather upholstery of the seats are pneumatic bladders which may be inflated to adjust both seat height and softness. The support and comfort that these seats provide cannot be improved upon. Foot room is good, the pedals are not crowded together and all controls are handy with the exception of the fly-off hand brake lever, which is situated far forward on the transmission tunnel. A large tachometer and gage cluster are located directly in front of the driver. The speedometer, which includes a trip odometer and a clock, is in front of the passenger . . . a location of dubious convenience.

The TR3 engine, with its high, oversize intake ports and big dual SU's, fires at the first spin even under temperature conditions that cause vapor lock in many engines. It idles at a busy 850 rpm, sounding content rather than nervous. For a racing start you put in the pleasantly light clutch



*You may be able to get a smoother ride, but if fast and flat cornering is what you're after, it's the forte of the Plus Four, sticking like glue at high speed, with everything hanging out.*

and poke the stubby shift lever into first, rev to 4,000 or so and let the clutch out as fast as possible without breaking the rear wheels loose. The clutch is ideal. It takes hold solidly, smoothly and without a trace of chatter or grabbing no matter how it's used. The car digs out instantaneously without any momentary hesitation due to rear-spring windup. In about 3.5 seconds you're at the 5,000 rpm red line and chop the shift lever downward into second. The gears crash painfully but they mesh. The synchronizers can't be beaten on third and fourth whether shifting up or down but, going either way, you must hesitate for an instant if you want to make it into second quietly. Double-declutching into first is easy, which can't be said for the gearbox that normally goes with the TR engine.

The TR Plus Four comes equipped with a Moss transmission whose internals are approximately identical to those in the Moss Jaguar box . . . which also tends to crunch when second is engaged. Coupling such a massive gearbox with the TR engine certainly should insure lifetime freedom from any sort of transmission failure. Spencer says, "We used to worry about the second-gear crunch until we tore a gearbox down after an hour's race in which we showed it no mercy. There wasn't a mark. Beyond that, I lost the clutch at San Diego and tried jamming the thing into gear with all my might. The sounds of protest were so horrendous that I gave that up and gloomily looked forward to the amount of damage we'd find when the box was opened. Again, not a mark. No abuse seems to make the slightest impression on it."

As the data table shows, this is one hot-accelerating machine. On the straight and level it will run off and hide, for example, from Triumph TR3's, AC Aces or Lancia Aurelia G.T.'s. Its nicely spaced transmission ratios keep the acceleration curve steep right out to the top limit of third, which is about 82 mph and 5,700 rpm. Beyond that, performance begins to get leisurely as direct drive to the 3.73 ratio takes over.

We were unable to achieve the 100-plus mph claimed for this car, as well as for the ten per cent less potent TR2 Plus Four. One reason is that in the interest of standardization we use a uniform one-mile approach to the timing trap for all top speed runs. At the end of the mile the test car still was unwinding, but very slowly, and our highest tach reading was 4950. These runs were made with top up and windows closed. With top down, windows and windshield removed the reduced frontal area would have made the century mark easy to break in this distance. But we were concerned with testing the convertible in normal road trim.

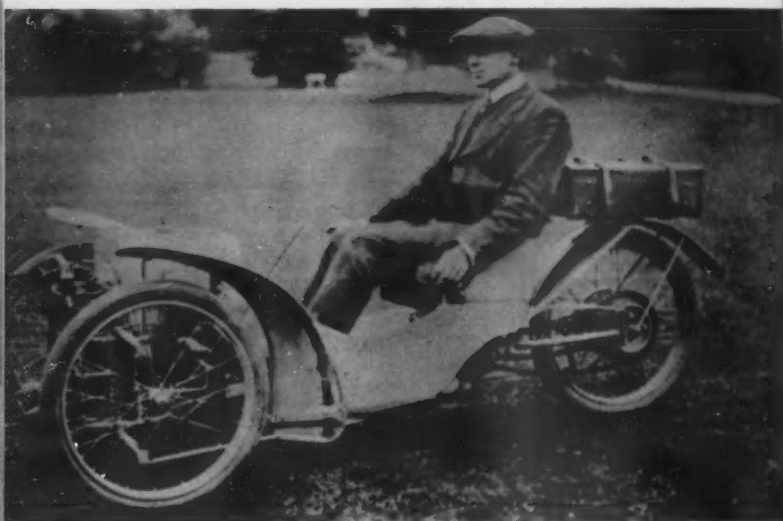
In the course of testing we did run the engine experimentally out to 5,700 rpm in second and third. Even at that point there was none of the machine-gun clatter often heard at peak in many pushrod engines. In competition Morgans the TR3 engine is balanced, red-lined at 6,000 and it can be taken to 6,500 although to no advantage. Only beyond six does the valve gear acquire that coming-un-soldered sound.

Even with the 3.73 axle gears (most competition models are fitted with 4.11) the TR3 Plus Four has surprisingly strong pulling power at low speeds. And it gives any sort of fuel economy that you care to drive for. During speed tests we recorded 19 mpg; by pussy-footing we were able to get 33 mpg.

Since Lew Spencer has raced several TR-engined Morgans and now owns his second, we asked him about the unit's reliability. On the street, he says, you just drive it and

drive it and do a little tuning when you happen to be in the mood. Racing, of course, is different. Although the engine holds its tune extremely well you naturally sharpen it before every race to be sure of getting peak performance. But when they are raced, when they're being run constantly at very high revs, TR's are hard on lower-end bearings. The practice of the Pellandini equipe is to drop the pan after every racing outing and, as a matter of precaution, to replace the con-rod big-end bearings. After every third race the engine is pulled, thoroughly checked, valves are ground and all lower-end bearings are renewed.

If you attend the races you cannot have helped noting how exceptionally fine properly driven Morgans look in the turns. They go around very fast and with hardly a trace of body roll or tire noise; they just stay dead flat. To the man behind the wheel they feel as fine as they look. We have rarely taken our standard test curve so fast — above 65 mph — and with such confidence and ease. The car sticks and sticks until the rear end begins to move outward, very gradually and slightly. A little less throttle and it tucks in; a



The original number-one Morgan (Esquire) at the controls of the original number-one Morgan (automobile), vintage 1911.

shade more and it moves a shade farther out. You have to be going pretty unreasonably fast to hang it out far, and Spencer has learned that you must drive far over your head to put one of these entirely predictable, forgiving machines into a spin.

This is one of the reasons that he and many loyal Morgans like him can't be pried away from the marque. After his second Morgan, Spencer stepped up to a Corvette. This lasted just about long enough for him to order a new Morgan from the factory. He says, "I like the feel of the car. You get a complete sense of being part of it." Says Nanette, his wife, "And it's a little different. When we had the Corvette every time we turned around we were waving at ourselves."

The Morgan is the delight of iconoclasts and non-conformists. It pretends to resist progress with its ancient — but so effective — suspension and with its carefully preserved vintage look. At the same time it keeps sufficiently abreast of the times to be a top competition contender. The tiny factory with its annual output of perhaps 500 cars is indifferent to the millions of dollars to be made on the

(Continued on page 48)

## MORGAN "PLUS FOUR" COUPE

Price at East Coast ..... \$1855 (incl. Fed. Tax)  
U. S. Importer:  
Worldwide Auto Import ..... Fergus Imported Cars  
1968 So. Sepulveda Blvd. .... 1717 Broadway  
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## PERFORMANCE

## TOP SPEED:

Two-way average ..... 95.0 mph  
Fastest one-way run ..... 99.6 mph

## ACCELERATION:

From zero to	seconds
30 mph	3.4
40 mph	5.3
50 mph	7.6
60 mph	11.8
70 mph	16.5
80 mph	21.9
Standing ¼ mile	17.8
Speed at end of quarter	73 mph

## SPEED RANGES IN GEARS:

I	0-33 mph
II	6-58
III	8-82
IV	11-top

## SPEEDOMETER CORRECTION:

Indicated Speed	Timed Speed
30	29
40	38
50	46
60	56
70	66
80	75
90	84
100	94

## FUEL CONSUMPTION:

Hard driving ..... 19 mpg  
Average driving (under 60 mph) ..... 28 mpg

## BRAKING EFFICIENCY (10 successive emergency stops from 60 mph, just short of locking wheels).

1st stop	59	6th	50
2nd	59	7th	45
3rd	59	8th	44
4th	55	9th	44
5th	54	10th	44

## SPECIFICATIONS

## POWER UNIT:

Triumph TR3 ..... Water-cooled, in-line four  
Valve Operation ..... Pushrod overhead valves, in-line  
Bore & Stroke ..... 3.27 x 3.62 in (83 x 92 mm)  
Stroke/Bore Ratio ..... 1.11/1  
Displacement ..... 121.5 cu in (1991 cc)  
Compression Ratio ..... 8.5/1  
Carburetion by ..... Two SU side drafts  
Max. Power ..... 100 bhp @ 5000 rpm  
Max. Torque ..... 117½ lbs-ft @ 2000 rpm  
Idle Speed ..... 850 rpm

## DRIVE TRAIN:

Transmission ratios	I	3.45
	II	1.98
	III	1.40
	IV	1.00
Final drive ratio	3.73 (4.11 optional)	
Axle torque taken by	leaf springs	

## CHASSIS:

Frame ..... Open channel sections  
Wheelbase ..... 96 in  
Tread, front and rear ..... 47 in  
Front Suspension ..... Sliding pillar, coil springs  
Rear Suspension ..... Rigid axle, semi-elliptic leaf springs  
Shock absorbers ..... Telescopic front, piston-lever rear  
Steering type ..... Cam and sector  
Steering wheel turns L to L ..... 2  
Turning diameter, curb to curb ..... 33 ft  
Brakes ..... Girling hydraulic, 2LS front  
Brake lining area ..... 121 sq in  
Tire size ..... 6.50 x 16

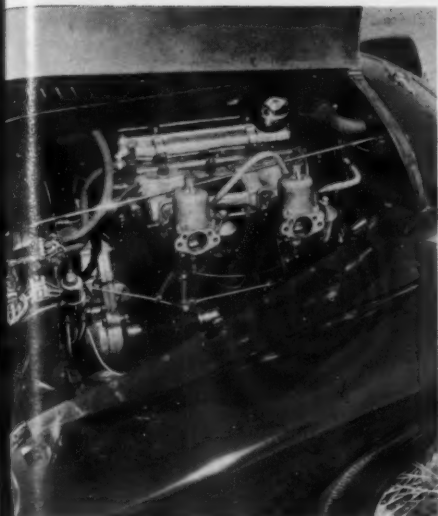
## GENERAL:

Length	144 in
Width	56 in
Height	48 in
Weight, as tested	2270 lbs
Weight distribution, F/R as tested	47/53
Fuel capacity	19.2 U. S. Gallons

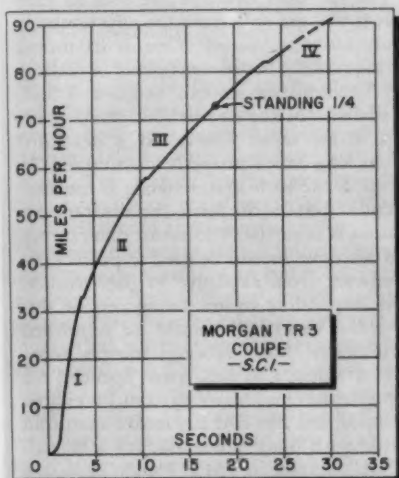
## RATING FACTORS:

Specific Power Output	0.53 bhp/cu in
Power to Weight Ratio	23.7 lbs/hp
Piston speed @ 60 mph	1745 ft/min
Braking Area	102 sq in/ton
Speed @ 1000 rpm in top gear	29.7 mph

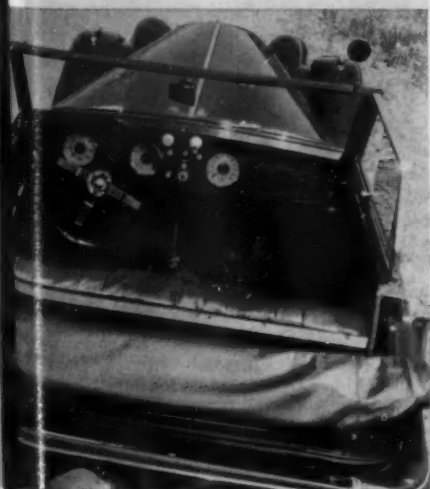




Morgan-owner pride of ownership is reflected in engine room of Spencer's car. TR3 is chromed and porcelainized.



Plenty of leg room, air-inflated seats, polished wood are touches that make the Morgan a truly distinctive machine.



## WATCH OF THE YEAR THE GMT MASTER



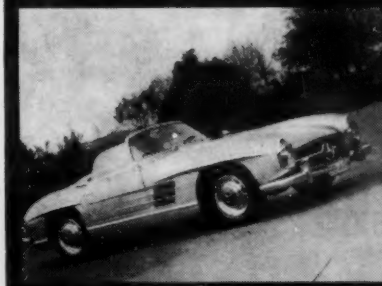
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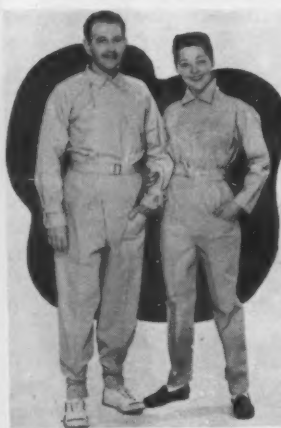


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## MORGAN

(Continued from page 47)

export market and seems to have no aspirations beyond that small and militant clientele that its somewhat offbeat products attract.

Typical Morgan owners delight in their cars' idiosyncracies. They beam and say, "Don't expect a Morgan to fit you. Either you fit it or you forget it." Actually, the range of seat-adjustability of the latest Plus Four is such that a six-foot-two owner of our acquaintance sits at the wheel of his car with legs comfortably extended. They say, "You can feel if a penny is facing heads or tails if you drive over it in a Morgan." That might be true if it weren't for the pneumatic seats that make insignificant any harshness that may be present in the ride. Except for a pronounced tendency to reflect the periodic blips of tar strips in concrete pavement, the Plus Four's ride is extremely free of vices.

The car does demand the sort of care that it will get only from the affectionately appreciative enthusiast. One of its mixed blessings is the instrument panel of mahogany—varnished smooth as glass—and, in the case of the convertible, door moldings of the same. The wood is beautiful... as long as it's properly maintained. In a closed car such maintenance is inconsequential but in an open car constant attention is required. A tonneau cover or top and windows should be used to protect the woodwork from exposure to the weather. And, depending upon the success of this care, the wood still should be refinished periodically. Most Morgan owners enjoy these attentions to their pets. Spencer, for example, has had many parts of his engine chromed and has had his intake manifold coated with black porcelain. It's a beautiful job that cost just \$4 at Pacific Porcelain Products in Los Angeles.

The Morgan body contains a good deal of wooden framing and keeping the wood, the frame and the sheet metal as united as they were when delivered calls for strict discipline. Says one owner, "Just let the body go and in a year you have something that sounds like a tin can full of marbles. But if you go over the car with wrench and screwdriver once a month and keep all the joints tight, the structure stays like new. It's like the MG-TC in that respect. And better paint never has been put on a car. Morgans take a polish like nothing else."

The Plus Four has its negative aspects that even ardent devotees don't try to defend. Vision, for example, is excellent until the convertible's top goes up. After that, the rear quarters of the top are completely blind. The convertible's windows are not of the roll-up type. They are framed units that can be bolted to the upper edges of the doors or removed entirely. When in place they make arm signals impossible because only the forward portion of the glass can be slid open. Ventilation, however, is no problem, as it is with some two-seaters when the weather equipment is in place. The rear portion of the top is zippered and can be worn open.

This, plus the window openings, plus the ability of the top to be furled open over the occupants' heads in "coupe de ville" style, insures completely ample air circulation. A Smith's heater is standard on the Plus Four for the U. S. and it can drive you out of the car if both vents are opened and the rheostat twisted all the way. Demisting ducts are not standard but they can be ordered and, in damp weather, they most definitely are needed. The convertible is quite water tight.

Bystanders might object to the Plus Four's vigorous exhaust note but it certainly is inoffensive to the car's occupants. Our one objection to this machine deals with its brakes. The stock linings are soft and have an indifferent bite even when strong pedal pressure is used. After three hard stops from 60 mph the linings began to smell strongly, and by the eighth they were smoking more than a little. Such brakes are discordant with such a spirited sports car and they need improvement. For racing, Pellandini goes to Frendo competition linings and Spencer reports that these stand up to the most severe punishment. In a one-hour go on the tight Paramount Ranch course they show no signs of weakening, he states.

Other criticisms of the Morgan? Well, the top starts drumming loudly above 40 mph. Spencer says that all it takes to stop this is stuffing a pair of driving gloves between the forward top bow and the fabric. The factory might take note of this. A couple of cents' worth of padding could eliminate this annoyance.

Among the many detail improvements that Morgan continues to inject into this apparently little-changing product, the current Plus Four has gained four inches in internal width. Overall width remains unchanged, but the rear fenders are narrower and the passenger area is much more spacious. The car's steering has also been improved greatly and now is about three times lighter than before, while none of its quickness and accuracy has been sacrificed. Backlash adjustment is provided.

Optional accessories for the Plus Four include wire wheels of the strong triple-laced type. Their spokes are known to break under racing stress, but they are much stronger than the more common double-laced variety.

Another option is a deep-finned light alloy sump. It holds almost two quarts more oil than the stock pan and provides much better cooling of the lubricant. It also looks hairy. Also readily available are aluminum fenders . . . all four of them. These items are standard on the competition Sebring model, along with beefed-up frame and suspension. Some of the options are available from the large parts stock of Pellandini's Worldwide Automotive Imports Inc. in Los Angeles and from Fergus Motors in New York, distributor for the eastern U. S. Others must be ordered from the British factory.

In response to the question, "How come you bought a Morgan?" most Plus Four owners have an excellent pat reply: "For less than \$3,000 how can you possibly beat it?"

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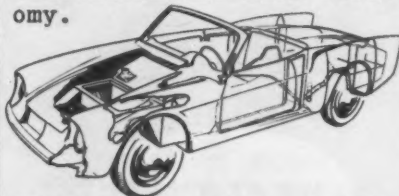
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## Dino 246

(Continued from page 36)

sports car engine, work on both probably having begun about the same time. New to Ferrari is the method of machining the camshaft box and carrier surfaces, which, for each head, are on the same plane and parallel to the head/block joint face. We commented on this feature in the Aston Martin DBR1/300 report, and note an even greater resemblance to the head shape of the fast East German EMW's of 1956 and before. This technique makes all head machining faster and easier, and in no way compromises the valve gear. To us it lacks only aesthetic appeal. An inherited feature of the heads is the large number and close spacing of the stubs, important with the detachable head and wet liners. The twin plugs are placed symmetrically in the chambers, and in a common vertical plane. Unlike the D50 and the preceding racing Lancia vee-sixes, hot water is removed from the heads by manifolds, attached just above the intake guides and seats. No cool water is fed directly to the heads, Alfa and Maserati style.

The carburetors currently specified are 46 mm. Webers, one venturi to each cylinder, of course. This compares with 42 mm as used in some 250F Maseratis, and 45 mm in the 300S Maser and D-Type Jaguar—all six-cylinders. Plenty of area there. With conventional carbs it is impossible to obtain straight ram tubes to each intake port. However it will be remembered that last year Ferrari tried a straightened layout on the D50's early in the year, and then reverted to the original more vertical arrangement. Perfect carburetion may count more than a few degrees less curvature. If ideal ramming is required, Enzo has a remarkable set of twin-throat Solexes ready. Their bores are oriented X-fashion with a common float chamber, and the whole carb should fit entirely within the height of the intake cam-boxes. This has the added advantage of placing the jets as close to the intake valves as possible, keeping throttle response time to a minimum.

Driving position in the G.P. Dino is very low, and when Hawthorn and Collins found themselves looking through the carburetor bulge they insisted that it be made transparent. The development of this shield from a simple windscreen to an enveloping shroud with rear opening is most interesting, in view of the pressure relationships that might be expected with the latest setup. Since this bubble is sealed off from the engine room proper, no upward drafts would be expected, and the carbs can draw from cool and relatively still air. Best of all, it weighs practically nothing.

Sparks are supplied by a new double

Marelli magneto, with dual rotors and contacts. The same unit, in double-ignition four-cylinder form, is used in the desmodromic Osca. Since the very first 1.5 liter Dino engine already had a mounting plate for this magneto on the back of the left-hand intake cam, it was probably under development specifically for these two cars.

Always highly regarded at the Ferrari works, the Lancia's final drive assembly remains the prototype for the Dino's gearing. Briefly, this includes a bevel gear (possibly a Gleason spiral bevel in some cars) set at the left feeding a six-inch multi-disc clutch and gearbox shafts placed across the car, one above the other. Being lighter than the D50, the Dino 246 was able to do without the first gear for starting purposes, so it has only four speeds forward. Dog-clutch gear engagement has also been reverted to, most likely some time ago. A complete pump system lubricates the whole assembly with engine oil from the storage tank in the tip of the tail.

When this revised gearbox was first laid out for the Formula II car, a slot was cast in the back for traditional sliding-block lateral location of the de Dion tube. Once again for the 1958 car, a reversion to the original Jano script has been made. Location is now by a frame-mounted block embraced by channels welded below the axle tube. This lowers the roll center three inches or so below hub level.

As a good-natured rebuttal to Ken Miles' criticism of Ferrari de Dions in the May SCI, we would say only that the major victory of this suspension system is the removal of the differential mass from the axle center, the worst possible place for any mass to be. While placing the drums at the wheels does increase the unsprung weight, big drum brakes are very easy to cool on an open-wheeled racing car, but hard to ventilate next to a hot gearbox. A neater solution is the Vanwall's inboard disc brakes, which are easier to vent, but we've already heard Ferrari's remarks on that subject. A high-mounted leaf spring and Houdaille shocks complete the picture at the rear.

Chapman's Postulate for Racing Cars is that the engine should comprise one fifth of the weight of the whole car. With an engine of 286 pounds and a dry weight of 1203, the Dino goes this a fraction better with no apparent loss of reliability. A lot was saved by a welcome return to a genuine space frame. Ferrari's late chassis for the D50 and the first couple of frames for the vee-six were basically twin-tube (2¼ inch diameter in the latter case) with trussed superstructure. For '58 the top and bottom tubes have been spread farther apart, and are 1¼ and 1½ inch in diameter respectively. A saving of 25 pounds results. In addition to the frame illustrated, there also exists a space-type rig with very high upper tubes—virtually shoulder-height—at the cockpit. This may be tried first with the Formula II engine.

Up front ball-joint suspension has been refitted after another trial of conventional kingpins. On the intermediate cars the upper wishbones retained Lancia welded-tube construction, but the latest Syracuse

edition has forged I-section arms top and bottom. The lower wishbone is now markedly longer than the top one, giving less change in tread with wheel movement and fractionally better "bite" on the outside tire. Steering is typical three-piece track rod with forward-facing steering arms and a worm and sector box. Springing is by small-diameter coils.

*Super Squalo* brake backing plates and mechanisms have been dusted off for use at the front, where something new for Ferrari in drum finning is being tried. Still of cast iron for stability and heat capacity, the drums are helically finned. Since the left and right drums have opposite helix angles, it seems that Enzo has something definite in mind here. The angle is meant to pump air in one direction, from the inside out, with rotation and forward motion combined, the top of the drum will have the most effect; at a braking speed of, say, 110 mph, the top will be moving forward at 167 mph, the bottom at only 52 mph. And the top indeed is finned to pump air outward.

These particular drums were first seen on the *Testa Rossa* 250, but the same helix is a feature of the famed Alfa Romeo *Giulietta* brakes, and even further back, on certain Cunninghams, among others. They provide a useful compromise between the good cooling of lateral finning and the drum strength of the circumferential variety.

The Casablanca *Dinos* were graced with exceedingly long needle noses and small air apertures, almost caricaturing the Vanwalls. The newest car has a stumpier and more practical but still shapely snout. Windshield area just in front of the driver has also been increased, while the high-mounted exhaust pipes have been shifted up farther away from the tires. Closely fitting the oval body form at the front, the Lancia-style radiator with integral header tank has been kept. Just in front of it is a very large film-block-type oil cooler.

Generally the *Dino* 246 has been represented as being much smaller as well as lighter than its forebears or its competition. First, its wheelbase is 85 inches and its tread about 48 inches. The Lancia-Ferrari was 85 to 90 inches (over a long racing life) and 50 inches respectively, while the Vanwall is definitely larger at 90¼ and about 53 inches. *Dino's* dry heft is quoted as fractionally more than 1200, against the 1440 pounds of the Lancia-Ferrari in its last year—probably heavier than the original D50. The '57 Vanwall weighed in at 1350, and will certainly be lighter this year. So the 246 Ferrari G.P. car does show some improvement, thanks mainly to the lightweight engine, new frame, and details such as using the fuel tank as an exterior surface.

Here then is a major contender for 1958 Grand Prix honors. Practical and efficient, it is a highly developed machine of the classic pattern, using none of the novel techniques—*injection*, *desmodromics*, *disc* and *inboard brakes*—proven effective in recent years. The *vee-six* engine is its most exciting feature. In the latter, "*Dino*" Ferrari is still very much alive.

Jesse Alexander and Karl Ludvigsen

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## Grand Prix of Europe The Cars

(Continued from page 39)

Ferraris again fielded a batch of cars which looked the same but were very different underneath. The two Englishmen are still driving the big-bottom-tube chassis cars, dating in design from last year, both also retaining tubular top wishbones. Hawthorn had an auxiliary cockpit tank while Collins did not. Gendebien was lent the von Trips space-framed car, while Musso had a quite new car of like design. Neither had a side tank. During practice, the new forward-facing carb air scoop on Gendebien's car was jacked up about an inch just for the hell of it, but they couldn't get the carburetion right so it was lowered again. All the new scoops are of alloy, so the drivers have to look around them and like it.

This was the first time the latest BRM's have encountered such a fast course, and all indications were that in their search for good middle-range output the Bourne-mobiles have sacrificed some top-end power. In fact, the Coopers and Lotuses were passing Behra down Masta Straight. According to Team Manager Tony Rudd, they finally did get their flexible carburetor mountings straightened out at this meeting, and thereby cured a persistent "fluffing" at lower speeds. As a result they were able to reinstall, on one car, the carb air ducting system which was originally used on the BRM. A collector inserted in that center grille slot is fitted with two pipes on the right-hand side. The larger flexible pipe leads through the suspension mounts to the rear carb, while a smaller one on the top takes a higher path to the front carb. Neither carb is actually pressurized; the pipes just supply cool air but apparently enough of it to tack on 100 revs or so at the top end. Under the hood there's also a more elaborate breather system for the oil tank, and detail attention to the locking of engine plugs.

During the first practice days BRM handling was not right at all. This was partially cured by softer settings for the rear springing, causing proportionally more weight transfer to be taken up at the front and resulting in additional understeer for this driftable track. The action of the rubber bumpers over the de Dion tube was also changed by altering the number of shims under their mounting plates.

In the Maserati camp most technical interest centered on the new lightweight car, which is reputed to scale about the same as the Vanwalls and Dino Ferraris. It is only fractionally shorter than the venerable 250F Maserati but notably narrower in track, and uses a different but still obviously Orsi suspension and braking layout. The heavily-ribbed five-speed gearbox is laid out as before but differently constructed, all cogs being usable during the race. The de Dion layout is unchanged. So is the engine. In Masten Gregory's few careful runs with the car it looked twitchy in fast bends but put up near-competitive times. It was due at the Nurburgring, along with the V-12 three-liter sports car (shortened 3003 chassis, bigger front brakes) on the Monday after the race for more testing.

Karl Ludvigsen



## Grand Prix of Europe

### The Race

(Continued from page 39)

off, the engine temperature gauge tying itself in a knot. Finally the flag fell and the pack roared off, Moss and Brooks making a beautiful getaway ahead of the front row Ferraris.

At quarter distance on the first lap, it was still Moss and Brooks in the lead followed by Gendebien, Collins, Behra and Hawthorn. Flat out down the Masta straight they roared, Moss going into Stavelot with a 200 yard lead over Collins who had already nipped into second place. Then an incredible thing happened: Moss, coming out of Stavelot sought to find top gear, but missed the shift completely, pouring on the coal while the gear lever was still in neutral. The rev counter undoubtedly saw ten thousand and the engine was broken. Angry at himself beyond words, Stirling had no choice but to come into the pits and retire, since '58 FIA regs do not allow a driver to change cars once he has started. Brooks and Collins now engaged in a short-lived dice for first place as the Ferrari had very little water left. Collins glided into the pits after four laps and Tony Brooks in the Vanwall continued faultlessly, to lead for the rest of the race. Twenty-four long laps after the start, he crossed the line to win his first Grande Epreuve (i.e. a GP counting towards the Driver's Championship). Having won, he stopped at the foot of the pits without taking the customary lap of honor, his gearbox on the verge of seizure.

Mike Hawthorn had held the gap between himself and Brooks as best he could but the Ferrari seemed down on power since practice. Toward the end, as his fuel load lightened, Mike tried hard to catch Tony but just could not get the green car in his sights. Hawthorn turned FTD on the 24th and final lap; as he shot across the finish line there was a huge "bang" and the proverbial cloud of blue smoke appeared as the Ferrari blew up on its fastest lap, a spectacular ending to one of Mike's best drives. He is really on form this year, easily the fastest of all the Ferrari team drivers and his exhibition in training at Francorchamps was something to see.

Third across the line was Stuart Lewis-Evans, 2 1/4 minutes behind Hawthorn. One of the Vanwall's right front wishbones broke near Stavelot and though he finished the last lap in a rather wobbly manner, he too took no lap d'honneur.

With the first three cars in pieces at the finish, the performance of Cliff Allison and the 2.2 Lotus-Climax was especially outstanding. Not only did he outpace the BRMs in an embarrassing and demoralizing way, when he finished (fourth), the car was still running perfectly!

Tony Brooks drove a beautiful race — his driving style as clean and steady as always. Only his lack of long competition experience separates him from the class of Fangio and Moss but there is plenty of time yet for this unassuming dentist from Manchester.

Jesse Alexander



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**Phil Hill**

(Continued from page 19)

"As I grew older I became more and more interested in European road racing and MGs in particular, having read a fascinating book on the history of the marque. George Hearst, the grandson of publisher William Randolph Hearst, told me they had a new TC for sale at International Motors in Beverly Hills. Well, I couldn't resist it. Bought the car then and there with the intention of racing it at Carrell Speedway. Now, this was in 1948, and I had quit the University of Southern Cal in June of the previous year to work as a mechanic for Rudy Sumpter. I'd always been miserable at school, feeling that I lacked a direction in life, and college was no exception. After two years, in which I took a course in Business Administration for want of something better, I walked out for good. School had not solved my basic problems: What to be? Where to go?"

Hill sipped the hot tea and shook his head. "You know, even though I'd always loved cars I had no real desire to be a racing driver — or anything else for that matter. From the time I was a small boy people would ask me: 'What do you want to be, Phil?' And I honestly couldn't tell them. There was never a label for me to hang onto. Whatever person I might have wanted to be was a sort of composite. I could never really say just what this person was. And this used to haunt me.

"Then there was this business of family respectability. Racing, of course, has never been looked upon as a respected profession in this country. The general public has always regarded a driver as a kind of wildman, a freak. My family kept thinking I'd 'get over' racing, like you get over a case of mumps. When I began to run the TC at Carrell in '48 I was affected by all this. Even when I won I'd be subject to fits of depression. I had a definite need to continue, to search for personal recognition, but I wasn't happy with racing as a method of accomplishing it."

Hill moved restlessly to the window. A trio of small boys were in the street. One of them held a string at the end of which was a toy plane, buzzing in wide insect circles in the sky overhead. Phil watched them for a moment, then returned to the couch. It is difficult for Hill to sit quietly for long periods; though he is just five feet ten inches tall most rooms seem much too small for him. This intense, nervous energy is also reflected in his manner of speaking — fast and excitable. Only in a racing cockpit, at speed, does Phil Hill seem to wholly relax. He admitted that in the early days even this was impossible.

"I drove with a thrusting kind of fever," he said. "Winning was essential and I just more or less drove over anyone who got in my way. I had no style, other than plain aggressiveness. When I think back to Pebble Beach in 1950 I shudder. Sure, that was my first big win, but it was nothing but a horribly unskilled example of sheer push. I had this modified XK-120



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Jag and I recall misjudging my revs and dragging the rear wheels for a couple of hundred yards when I downshifted. The clutch had blown early in the race and the brakes went out next. I'd come into a tough corner, knowing I couldn't make it, roar up an escape road, then get back on the circuit and keep going. Everybody else just got out of my way!"

The Pebble Beach victory encouraged Hill and he finished among the leaders in other coast events that season. But the Jaguar was not rapid enough to defeat his big rivals, the Allards and Cunninghams, and Hill began to cast about for another machine. He ended up with a 13-year-old 2.9-liter Alfa which was "really a wonderful thing to drive." The old red Alfa, however, was beset with mechanical ills and Hill reluctantly sold it to help finance his first Ferrari, a potent 2.6 liter model which he ordered direct from distributor Luigi Chinetti in New York.

"I was able to buy it for much less than most people thought you could get one for at the time. These cars were then pretty rare on the coast and I kept my mouth shut about the low price because I didn't want a whole flock of other Ferraris running against me."

The 2.6 (outright winner at Torrey Pines) gave way the following year to a 2.9, and Hill was definitely on the way up, with many local victories to his credit. Mexico, late in 1952, offered him his first chance to drive against the European aces and he brought Allen Guiberson's trouble-plagued 2.6 Ferrari coupe into sixth overall.

"That event got my ulcer off to a flying start," declared Hill. "I still wouldn't admit that I wanted to be a racing driver and I went to Mexico utterly at odds with myself regarding what I wanted to do with my life. My whole system rebelled and I couldn't keep a thing on my stomach. Heart muscles and all kinds of other strange muscles were having little convulsive spasms — and Allen had to take along a whole truckload of baby food for me to eat down there!"

After another year of competition Hill took his doctor's advice and began a 10-month layoff.

"Well, when I came back to take that second in Mexico in '54 it decided my career. I was finally able to come to terms with myself and admit that racing was indeed the profession I wanted to follow. This changed everything for me; I began to approach driving with the idea of developing a smooth technique. I began to dream about the future possibility of joining a factory team and competing in Europe."

The dream was soon to become solid reality. 1955 was Hill's most successful year in the States (with several wins around the country and a second overall at Sebring) climaxed by a hard-fought victory in the Nassau Trophy race in the Bahamas. In January of 1956 he finished behind winner Stirling Moss at Buenos Aires, thus attracting the attention of the Ferrari factory.

"They invited me to Europe as a team member for the '56 season," Hill continued. "I was stunned, but of course I agreed to go. Once overseas, I found it damned hard to adjust. Here I was com-

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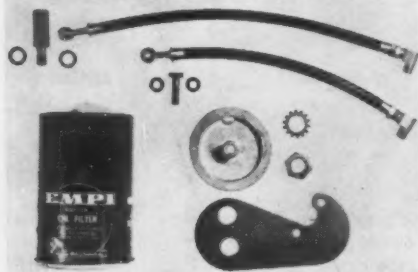
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**Phil Hill**

(Continued from page 55)

peting on equal terms with a bunch of drivers I'd formerly placed at hero-level — and in the beginning I found myself driving with a negative, defeatist attitude. My lap times suffered in proportion."

By mid-season, however, Hill was hitting his stride. His Ferrari took third behind Moss and Fangio at Germany's treacherous Nürburgring; he was second at Oporto and wound up the year with two impressive victories, winning the Grand Prix of Sweden for sports cars (with co-driver Maurice Trintignant) and scoring a solo first at Messina, Sicily, in a clearly out-classed machine.

"For the first time since 1948 I was able to get complete satisfaction out of racing. The sport is highly regarded in Europe and drivers are treated like kings. Suddenly I saw that here was a respected way to exist, a way to make a decent living. I was able to overcome, at long last, feeling a basic lack of conformity as far as an occupation was concerned. In 1954, in Mexico, I had accepted racing; now, two years later, it had accepted me."

Hill was signed again in 1957 to drive a team Ferrari for the European season. With Wolfgang Seidel he co-drove to second overall in the 12-hour race at Rheims, France. He then flew to Bonneville to "shake down" the new EX-181 MG experimental car which Moss later drove officially to new Class F land speed records.

"I thought it was simply a matter of getting in and driving fast in a straight line," said Hill. "Actually, I was terrified in that machine. Well, just imagine it. You're sitting well forward of the engine with no part of the car visible ahead of you. You sit there under the canopy, rushing over the salt at 240 miles per hour with the whole car shaking and rattling around you, waiting for a tire to pop or something to let go..."

Hill described a near disaster at "something over 200" when the engine fumes were sucked into the cockpit.

"I almost blacked out. There were no vents to admit fresh air and wind velocity kept the canopy pressed shut. I knew any sudden braking in that speed range could mean a crash so I held my breath to keep from inhaling the stuff and gradually slowed down. It took me thirty seconds to stop the car — and they were the longest thirty seconds of my life. When we turned the machine over to Moss vents had been cut to provide a steady blast of air. Which solved the problem."

In September, Hill won the Elkhart Lake (Wisc.) 500-miler over his old State-side rival, Carroll Shelby. He was next teamed with the charging young Briton, Peter Collins, at the Grand Prix of Sweden. Their sports Ferrari took second behind the much faster 4.5 Maserati of Moss and Jean Behra.

The Hill-Collins combination was a fortunate one. The well-matched pair won the accident-ridden race at Caracas in November of 1957, clinching the sports car

championship for Ferrari. They went on to sweep the field at Buenos Aires a few months later (causing Fangio himself to smash up his car in trying to catch them) and boomed home first under the flag at Sebring in late March.

"I began the race and was lucky enough to get off to a perfect Le Mans start," Hill related. "Our car took over the lead at the fourth hour and held it all the way in, but we were very fortunate to win considering the fact that we were without brakes for the last three hours. I had to use up half the straight for the corner,



Hill's calm before the start (at Sebring) is far cry from old days. At '52 Torrey Pines in his first Ferrari, he was tense.



shifting down at very high revs — around 7500 — in order to get some stopping power. It was a hassle."

In accepting the prize money at Sebring Hill automatically disqualified himself from U. S. sports car racing, which is still an amateur sport. However, he feels that professional sports car competition is imminent in one form or another.

Hill's debut in the powerful super-fast Formula I Grand Prix machines took place this year in Buenos Aires when the Californian turned a lap at 2-17.3 on the second day of practice with a works Ferrari. His team-mate, Collins, a veteran in this type of car, only managed to lap a half-second faster in another G.P. machine. Based on this excellent showing it is only a matter of time before Hill becomes a full-fledged member of the Formula 1 team.

Then, too, there is the fact that Hill has only had one serious crash in his entire 10-year competition career, indicative of his great reliability behind the wheel. Such

Irv Dolin

Photos by Stephen Wilder

a record is all but unheard of in racing circles.

"The fast overseas courses taught me a lot about conserving tires and brakes," Hill stated. "But the most important single thing I learned was how to take a fast bend of 100 miles per hour and upward. You don't get any of these in the U.S. Our circuits are just not built that way. Fangio is the absolute master of the fast bend — and that's one of the main reasons he's still World Champion."

Hill bristles at the term "blood sport" in relation to racing.

"Sure, it's dangerous, but so is high-school football, and mountain climbing and ice hockey." His brown eyes flashed. "I'm not kidding; the sport has been maligned far too often, unfairly distorted by 'yellow journalists' hungry for sensational headlines. The actual statistics are all in our favor. But if you drive senselessly, beyond your capabilities, then you're going to get killed, whether you're on the Nürburgring at 180 in a Ferrari or on the Hollywood Freeway at 60 in a Ford convertible."

Questioned about other interests beyond racing, Hill walked over to a corner of the room and drew back a curtain. The wall was a solid mass of Scott high-fidelity components.

"This set-up is great," he claimed. "The ceiling is made of special acoustical tile, which helps. I'm trying out a new amplifier and the results are just — Well, listen and you'll see what I mean."

He placed a record on the turntable and set the needle in place. Then, head inclined to the left, he turned up the volume control. Vivaldi's *Concerto For Two Trumpets* knifed through the room.

"Hear that bass?" Hill closed both eyes for a long moment as the music thundered around him. Then he twisted the gold knob once more, lowering the volume. "You know, I used to play the piano and alto horn, and fool around with drums, but I gave it all up years ago because I just wasn't satisfied with the kind of sound I was putting out."

Suddenly he snapped off the unit and reached for his jacket. "Say, I almost for-



got. I have to meet this guy from the paper in ten minutes."

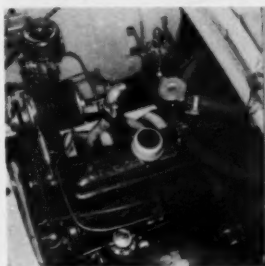
Hill's black Volkswagen sedan (stock, but de-cambered) waited bug-like for him at the curb. He sprinted across the lawn, sliding behind the wheel and firing the engine in one fluid motion. In another second the car was moving briskly away.

Again, as at Sebring and at Le Mans in the heat of battle, Phil Hill had made a perfect Le Mans start.

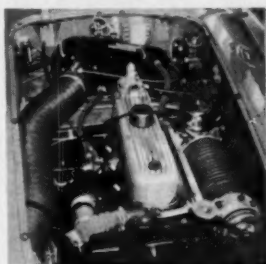
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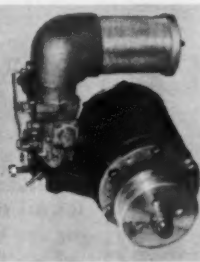
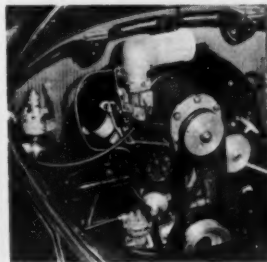
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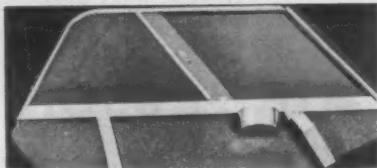
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## 4.9 Ferrari

(Continued from page 21)

was completely inadequate for top speed runs, so we'll just leave that delicious thought to your imagination.

The engine responsible for all this is, typically, a V-12. This one is based directly on the Lampredi-designed engine which started out in life as a 3.3 G.P. engine in 1950 and ended its competitive life in the 4.9 sports model which won at Le Mans in 1954. In the succeeding years a lot has been learned about improving bottom end performance without losing all the top end punch. Today it puts out a jolting 380 bhp at 6500 rpm, with 7000 revs being "allowed".

The "silumin" block (presumably a silicon bearing aluminum alloy) contains pressed-in wet liners. The crankcase ends at the center line of the seven main bearing crankshaft. As in ordinary vee-type engines, the connecting rod big ends are paired on the crank journals, Vandervell Thin-Wall bearings being used. The separate heads each carry a single chain-driven overhead camshaft. The same chain, adjustable for tension by a turnbuckle, drives the water pump. The vee-inclined valves, two per cylinder, are opened by rollers on the end of short rockers, and are closed by hairpin type springs. Single ignition is by dual distributors, located at the very rear of the engine. So crowded is the compartment that access to them is through a panel that looks like a cowl air scoop. Three twin-choke Weber carbs are fed by two mechanical diaphragm fuel pumps and a self-regulating electric pump, the latter being useful when starting after a long rest as well as for sustained full throttle work. Extra air is pulled through the multi-tubular radiator by a fan, making the 4.9 quite usable in slow traffic.

The four speed transmission has very close ratios, all of them with synchromesh of Porsche design. As on the 250 GT, the shift pattern is backwards, the forward positions being R, 3, 1, left to right and the rear row 4 and 2. Reverse is not synchro and clutch drag causes a disconcerting clunk-clunk-clunk when it's being engaged.

Starting technique is this: Switch on; if the car has been sitting awhile, turn on the electric fuel pump, too, to refill the float chambers. Follow this with one full depression of the accelerator pedal; then, with your foot off the gas, depress the clutch (even though in neutral) and press the starter button. The engine bursts into life with a delightful roar and settles down to a purring idle of only 700 rpm. If the engine has only been stopped for a short time, the electric pump may be ignored and it will be helpful to crack the throttle just a bit.

Being synchronized, first is easily engaged, but now comes the touchy part. If you've ever heard a Ferrari engine shut off, you'll know they have a small flywheel, if indeed it is anything more than a holder for the starter ring gear and the pressure plate. To further complicate matters, the triple-plate disc clutch, though it will slip if eased into engagement, will



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not last long when treated thus because of the abrasive qualities of the resultant lining dust. Starting from rest requires the knack of letting out the clutch quickly enough to minimize slip yet not so quickly as to stall the slow-revving V-12. At just the right moment, a tiny amount of throttle can be given, especially if you're headed uphill; but if it's too much you can embarrass yourself with an excess of either wheelspin or clutch slip. If it comes too late, in an effort to save a stalling engine, the coupe may lurch forward in an uncoordinated series of jerks and leaps reminiscent of one's first driving lesson. But it's not as grim as all that. The knack soon comes and though you don't go out of your way to make stops and starts, they rapidly lose their terror.

Underway in first, we immediately found that it is indeed a highly geared bottom cog. Propelling the car at 10 mph per 1000 revs, maximum speed in this gear turns out to be 65 miles per hour. You don't ever have to shift if you stay within the posted speed limits!

Second, third and fourth are closely grouped and with the incredible smoothness of this multi-cylinder unit, it was possible to fully open the throttle smoothly and rapidly (though not instantly) when cruising in top gear at only 22 mph (equivalent to 900 rpm). Though Luigi Chinetti, the factory's representative here in the USA, won't release the figures, the valve timing must be pretty interesting to provide 380 bhp at 6500 rpm, yet still run so well at under 1000 rpm.

Coming upon a large rotary, apparently undiscovered by the rest of the motoring public, we commenced making fast laps, followed by still faster ones. Stopped finally by a gentle reminder from the smiling owner about the price of Pirelli *Corsa* tires, we had made several observations. The 4.9's steering is not for the anemic, at least not when really barreling. From the driver's seat, the Ferrari is a genuine understeerer, requiring more and more steering lock to maintain the same radius as the speed is raised. With the increase in lock is a corresponding climb in force required at the wheel rim. And then, when you really think you're second only to Fangio, another crack of the throttle will induce the rear wheels to start their slide to the outside in a smooth transition to a power-controlled final-oversteer. That's really living!

Precise handling of this sort doesn't just happen, but a look at the suspension reveals nothing extraordinary. Coil springs and wishbones in front and a rigid axle with semi-elliptics at the rear describes many an American car as well. It's not what it is, it's how it's done that makes the difference. The low center of gravity and the modest overall dimensions contribute greatly to the ease of control, so do the sturdy Houdaille shock absorbers. That wheel geometry doesn't go awry, rigidity in the frame is ensured by building it of deep section steel tubing.

Draped over this welded frame is one of the prettiest bodies we have ever seen. The trained eye can detect its Pinin Farina origin without looking for the maker's medallion, for it embodies many features that are virtually trademarks of this gentleman. The wide, low snout is similar to



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**4.9 Ferrari**

(Continued from page 59)



**FERRARI 4.9 "SUPER FAST"**

Price at East Coast POE .... \$16,000

U. S. Importers:  
Luigi Chinetti  
440 West 19th St.  
N. Y. 11, N. Y.

Ferrari Rep. of Calif.  
1767 North Cahuenga Blvd.  
Hollywood 28, Calif.

**PERFORMANCE**

**ACCELERATION:**

From zero to	Seconds	(250 GT 3.0)
30 mph .....	2.8	2.0
40 mph .....	3.6	3.1
50 mph .....	4.5	4.3
60 mph .....	5.6	5.9
70 mph .....	7.1	7.9
80 mph .....	8.3	10.1
90 mph .....	9.8	12.4
100 mph .....	12.1	15.5
Standing ¼ mile.....	13.9	16.1
Speed at end of quarter.....	108 mph (estimated)	

**SPEED RANGES IN GEARS: (900-6500 as tested, 7000 permissible)**

I .....	9-65 mph (70)
II .....	13-93 (100)
III .....	18-128 (138)
IV .....	22-top

**SPEEDOMETER CORRECTION:**

Indicated Speed	Timed Speed	Indicated Speed	Timed Speed
30	26		
40	35	80	75
50	45		
60	56		

**FUEL CONSUMPTION:**

11.8 mpg

**SPECIFICATIONS**

**POWER UNIT:**

Type 410 .....	60° V-12, water-cooled
Valve Operation .....	Single camshaft per bank, rocker operated Vee-inclined valves
Bore & Stroke .....	3.46 x 2.68 in (88 x 68 mm)
Stroke/Bore Ratio .....	.77/1
Displacement .....	302 cu in (4962 cc)
Compression Ratio .....	9.0/1
Carburetion by .....	Three Weber double choke 42DC
Max. Power .....	380 bhp @ 6500 rpm
Idle Speed .....	700 rpm

**DRIVE TRAIN:**

Transmission ratios	I .....	2.44
	II .....	1.71
	III .....	1.24
	IV .....	1.00
Final drive ratio .....	3.44 (3.66, 3.22, 3.11)	
Axle torque taken by .....	Twin radius rods	

**CHASSIS**

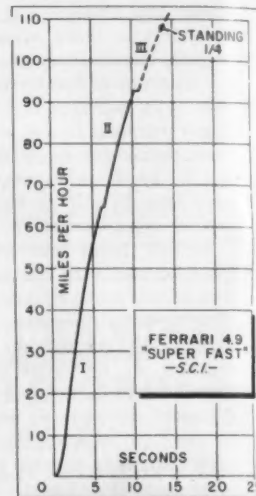
Frame .....	Welded deep section steel tubing
Wheelbase .....	102 in.
Tread, front and rear .....	57.5, 57.2 in
Front Suspension .....	Independent; coil springs and wishbones, anti-roll bar
Rear Suspension .....	Rigid axle, parallel radius arms, semi-elliptical springs
Shock absorbers .....	Houdaille "oleodynamic"
Steering type .....	ZF box with equal tie rods from central idler arm
Steering wheel turns L to L .....	3.4
Brakes .....	14 in diameter, aluminum drums, 2LS front, double cylinder parallel acting rear shoes
Tire size .....	6.50 x 16
Rim size .....	5.0 x 16

**GENERAL:**

Length .....	188 in.
Width .....	68 in.
Height .....	54 in.
Fuel capacity .....	29 U.S. gallons

**RATING FACTORS:**

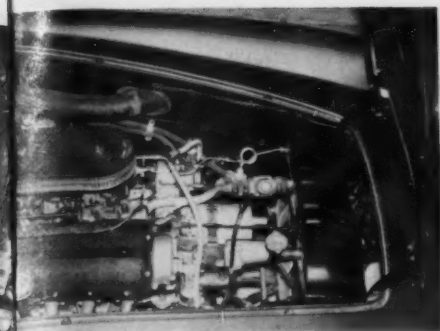
Specific Power Output .....	1.26 bhp/cu in
Piston speed @ 60 mph .....	1100 ft/min
Speed @ 1000 rpm in top gear.....	24.4 mph



*Sumptuous is the word.*







Hard to tell from p. 18 of January issue.

the newly announced 250 California roadster's and identical to that of the 250 GT Cabriolet. Faired-in sealed-beam headlights are recessed well into the front fenders and the bumpers consist merely of large rubber pads mounted nearby. For additional protection, de Vroom has added Sonic Shields, though I hate to think what might happen if some Nervous Nell should get an earful of that air horn while reversing and let her foot slip off the clutch. De Vroom assures me that all such people drive automatic transmission cars now and that he has nothing to worry about. Hope so.

Tucked directly behind the grille to avoid disrupting its symmetry are two Marechal Fantastiques. One is a fog light with a flat-top beam, the other is for long range with a pencil-like one.

Behind the door windows are vents identical to those on the competition GT coupes shown in "Ferrari Folder" in our April issue. (Though built by Scaglietti, these cars were designed by Farina.) Also familiar are the air vents in the body sides behind the front wheels.

New to us, though, is the gentle crease running the length of the side panels. It provides, from some angles, a two-tone effect which subtly stretches out the already long, low lines. The Elva Courier has a similar crease but on the Super fast it merges at the rear with the slim, horizontal bumper. The latter, though without overriders is sufficiently high to serve usefully in the give and take of American parking techniques, yet its height in no way detracts from the shape of the rear.

The four-nine's tail is perhaps Farina's triumph. Always one of the most difficult sections of a car design to handle successfully, Farina has really scored here. Spurning the anal approach of most current designers, Farina has shaped a hind end that

(Continued on page 62)

pay your money and you take your choice.



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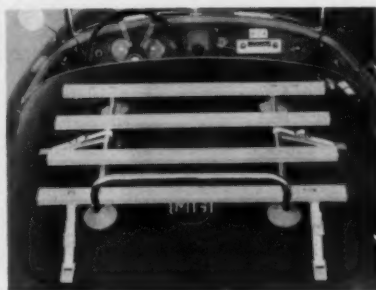
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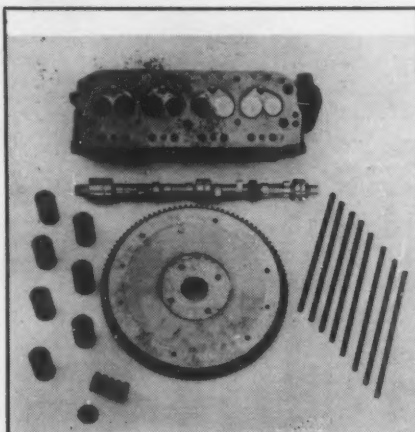


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# 4.9 Ferrari

(Continued from page 61)

is simple, clean and interesting, being neither austere nor outrageous. Shaped aerodynamically, its sides, ends and top and bottom join without definite corners, yet it's not at all amorphous. The shape bespeaks speed and power—and the ability to control them. In short, this is a superb looking car, as a glance at the pictures will convince you. The *Super fast* enjoys a very real forward look, for it catches your eye and draws it to the front, where a chrome-plated horse, half an inch thick, prances on the traditional egg-crate grille.

As if good looks weren't enough, the gentle firmness with which the doors, the hood and the trunk lid close rivals that of the finest coach-built limousines in the world.

Before we even had a chance to get in the car, the proud owner was showing us how the front seats slide forward a few inches as their backs are tilted. This makes access to the large luggage space easy even though the seats are well back on their adjustment. To keep baggage from sliding about, two leather straps (matching the upholstery, of course) may be fastened to hold it firm. Inside the car is the proper place for suitcases, the trunk being pre-occupied with the 6.50x16 spare and the extensive kit of tools, most of which are handsomely chrome-plated.

Long in the legs, we found that even with the seat right back, the angle of the cushion was such that it did not support our thighs. Brought about by stuffing the 4.9 engine into the three liter's wheelbase, the remedy lies in tilting the seat cushion up at the front and perhaps raising the steering wheel.

The central gear shift lever comes, as the saying goes, readily to hand. It requires a firm but mild touch, its operation being neither sloppy nor truculent. The wood-rimmed steering wheel sits rather upright. Well forward, it suits the straight arm technique. On the dashboard are instruments, warning lights and switches galore, our favorite being the headlight flasher which provides the fastish driver with a silent way of blowing the horn.

When the going really gets vigorous, a pair of central arm rests may be folded down. Suggested by de Vroom himself, these convert the plush leather seats into body gripping bucket seats of racing character. When they're folded away, one can lounge about comfortably, listening to soothing music from the station-seeking Blaupunkt AM-FM radio. Nice touch. Its antenna is erected electrically when the set is turned on and retracts when flipped off. Jazzy switching on and off makes it dance vigorously up and down in a most eye catching manner.

A slight flaw in the windshield directly in front of the driver was a bit of a bother, but as the car is covered by a full year's guarantee, this was to be cared for on the next visit to the factory. The guarantee is independent of mileage, this car having already covered some 20,000 kilometers before we tested it.



## THE BRITISH ARE COMING!



This September, off the coast of Newport, R. I., Great Britain will try for the 17th time to take back the Cup won by the schooner "America" in 1851. The upcoming America's Cup Race, the first since 1937, has captured the imagination of the world.

It's no wonder! For rarely in history does a sports event come along with such color, tradition and excitement. British yachtsmen have invested more than \$20 million through the years to recapture "the ugly old mug" valued at \$100. This is the Race that has produced such great international sportsmen as Sir Thomas Lipton, T. O. M. Sopwith and Harold S. Vanderbilt.

To mark the occasion — dramatically and colorfully — POPULAR BOATING will publish a Special America's Cup Edition on August 26. You'll certainly want to read the Giant September issue, containing:

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Though the suspension is basically the same as many an American car, the ride is not. It is firm, which endows it with a healthy sort of comfort, unrelated to wallowing about on overstuffed pillows. On one point though, it did give us some bother. When cruising at thirty to forty mph, New York City's roughest streets occasionally set up a front wheel shimmy of gigantic proportions, the steering wheel oscillating violently. By drastically reducing speed, say to 20 mph, it could be made to disappear, but in heavy traffic this is a bit annoying to one's fellow road-users. We thought a steering damper (a miniature shock absorber connected between the frame and the drag link) such as mounted on Porsches and M-B 300SLs would be just the thing. Indeed, since testing de Vroom's car, we have run into another 4.9 Super fast. Belonging to Bob Wolfe of Columbus, Ohio, it too has a Farina body, but it looks more like a rich version of the 250 GT than like this car. We mentioned the steering damper to him and he promptly opened the hood and showed us one. Daimler-Benz made it, the part number is 0004600266. An older part, 0004631432, will probably work just as well.

Jan de Vroom's attitude to this wheel shimmy reflects the thinking of the Italians who make the car; it goes away if you step on the gas. To better gratify such an attitude, he left for Europe two days after our test to spend the summer there, taking the car with him, needless to say.

Quick and beautiful, and occasionally awkward, the 4.9 Super fast is like a woman; she demands something in return from the man who would enjoy the best she has to offer.

Stephen Wilder

## Stopwatches

(Continued from page 25)

than a pocket-size instrument; but they're also harder to read, easier to err with, and more sensitive to those things that disagree with the functioning of clockwork. My personal feeling about wrist chronographs is that they are one of the nicest forms of jewelry that a man can wear. They are capable of keeping quite accurate time and their stopwatch features are extremely handy. But if you're downright seriously concerned with the sort of precision timing that racing or rallying demands, do what they do in the Big Time: use a big watch.

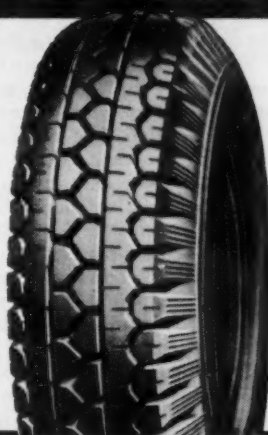
Fangio wears a wrist chronograph and uses it seriously. But it is an Ulysse Nardin, a name that means the best navigational chronometers in the world. As with Patek Philippe, only a few can own them because only a few are made.

I have spoken somewhat flippantly about wrist chronographs only because their gimmickry often approaches the bizarre. But there are dozens that any speed enthusiast would slaver at the sight of and be fortunate to own.

(Continued on page 64)

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## Stopwatches

(Continued from page 63)

The entire Breitling-Wakmann line is in this category but, as a devotee of the circular slide rule, their Navitimer does it for me. This instrument combines a chronograph with a complete pilot's computer and time-out feature. It has a moveable outer bezel or rim and a fixed inner one and their calibrations are those of the "C" and "D" scales on any slide rule. Any problem in multiplication or division can be solved with three-place accuracy below 60 and with two-place above that. The scales are surprisingly easy to read, and the dial is specifically designed to deal with problems of speed, distance, fuel consumption and navigation. It has extra-large push-buttons to facilitate operation with gloved hands.

The Mido Watch Company makes a line of wrist chronographs which all share a unique feature. This is a 60-minute accumulated time register running around the periphery of the dial. The register needle is as large as the sweep hand but is colored red. For anyone who finds the tiny dials on conventional wrist chronographs hard to read, an instrument like the Mido Multi-Centerchrono is the answer.

Movado makes a wrist chrono that is exceptional from the standpoints of service and assembly. A conventional chrono consists of a time-of-day movement with a stopwatch movement superimposed upon it. Therefore, to do any work on the time-of-day movement, it usually is necessary to dismantle the whole stopwatch mechanism in order to get at the source of trouble. But in Movado's patented design the whole stopwatch movement can be removed as a unit after the removal of just three screws. Maintenance costs, in the long run, theoretically should be lower for Movados.

Oddly enough, stopwatches as a class are very durable instruments and they stand up indefinitely to abuse in industrial, military and sporting applications. The most universal abuse that they are subjected to is neglect. The average owner reasons this way: "An ordinary watch should be cleaned once a year, they say. Since I run my stopwatch for only a few hours a year, why ever have it cleaned?" The fact is that the cleaning operation also is a lubricating one. An ordinary watch that runs every day of the year keeps its oil more fluid by keeping it working. But oil that is left standing for long periods tends to become gummy and it certainly does this in the occasionally-used stopwatch. Once a year any stopwatch that is being used for serious purposes should be disassembled, the old oil removed and new oil added.

Take care in choosing the watchmaker to whom you entrust a stopwatch or chronograph. These are highly specialized instruments and are most safely entrusted to the care of specialists. In an effort to cover up his reluctance or inability to do the job a repairman of conventional timepieces may state that a given stopwatch or chronograph isn't worth the cost of repair or that parts just aren't available. But they are durable and have to be in very bad shape before it becomes unreasonable

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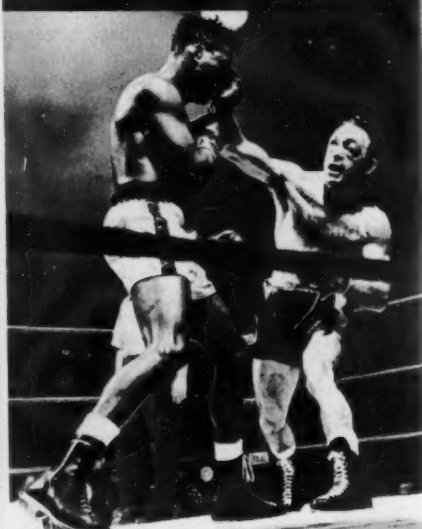


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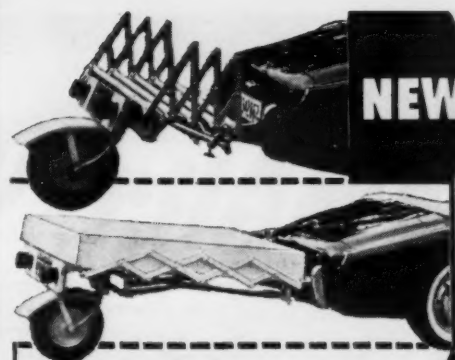


to repair them. Specialists stock the parts or know where to get them quickly. The parts for the majority of Swiss watches are highly standardized and interchangeable.

As for what a stopwatch should cost; if you pay more than \$15 for a seven-jewel pin-lever type, you're probably paying too much. You can get a seven-jewel jewelled-lever watch for as little as \$19 or \$20. Beyond that, you can get all the features, quality and style that you care to pay for.

—Griff Borgeson

Our next installment on timers and timing will deal entirely with rallies; we'll tell you the best instruments to use and describe HOW TO BE A FOREMOST CONTENDER THROUGH SCIENTIFIC TIMING. If you're a rallyist, you cannot afford to miss this important article.



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## Nuvolari

(Continued from page 27)

Running north to Florence along the coast, Nuvolari held much of the time advantage he had piled up before Rome. He needed it, for from Florence on the roads were good, and comparatively straight, and torque and inches would tell. He came into Florence still leading the entire field: he had run 721 miles in 10 hours 13 minutes, an average just one-tenth under 70 miles an hour. Biondetti was within seconds of him now. The worst of the mountain roads were ahead, and the weather had become incredibly bad: rain was falling in sheets, and in places the wind blasted it horizontally across the roads. Wind and thunderstorms had put down telephone wires along the route, and the drivers no longer knew their standings. At Asti, 958 miles out, Nuvolari was still leading. But the cars were now boring through a full tropical cloudburst, and the twisting roads, the up-hill-and-down terrain in which Nuvolari's unearthly skill outweighed the bigger engine in Biondetti's Alfa, were all behind him. Ahead lay the Turin-Milan-Brescia autostrada, flat and straight. On this last stretch, every advantage lay with Biondetti — not only because of the extra horsepower under his foot, but because he was riding in a closed car. Nuvolari was sitting in a puddle and had been for hundreds of miles; the water sloshed around in the little Cisitalia as it would in a mobile bathtub. And the full brunt of the storm centered in the north, between Turin and Brescia. Some drivers, even veterans — Balestrero was one — pulled up and quit under trees, under bridges, anything to get out of the rain falling like lead. "I couldn't see six inches ahead of my windshield," one of them said. "It was like driving on the bottom of a lake."

Out of Turin, Nuvolari was five minutes behind Biondetti but somehow he held him on the autostrada, driving flat out, running on knowledge of the road, instinct and his incredibly fast reactions. But, nearing Milan, the engine was swamped and the magneto quit. Nuvolari and his co-driver, Carena, piled out and changed it. Holding a coat over the engine, working by feel, it took them over fifteen minutes to hook up the new magneto. They came into Brescia at 4:30 Sunday afternoon, 16 minutes and 4 seconds behind Biondetti. After 16 hours of driving, Nuvolari was slumped over the wheel. He could barely raise his head. They lifted him out of the car, carried him into a hotel and sent for a doctor. Giving away 80 horsepower and nearly two liters, driving an open car through one of the worst storms in Italian history, he still would have won, or come within seconds of winning, had the Cisitalia's magneto held up. It may have been the greatest single drive in the history of the Mille Miglia.

—Ken Purdy

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